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American Foundryman

A PUBLICATION PRESENTING ASSOCIATION AND CHAPTER ACTIVITIES

December 1943

How the Foundry Industry Can Help in Conservation of Fuel

THE foundry industry is entirely dependent on fuel in some form or other for its operations.

Fuel is rapidly becoming the No. 1 problem of this country, and the foundry industry can materially help the war effort by immediately instituting in every plant a *real fuel conservation program.*

The foundry industry is one of the larger users of fuel in this country, and we cannot operate without electric power, coal, coke, fuel oil and gas. Hence every KWH, pound, gallon or cubic foot of fuel saved for the balance of the war will more nearly assure our industry of a supply of fuels with which to operate, and we will be cooperating in the national effort of fuel conservation.

Here are some suggestions that will aid in the conservation of fuel:

1. Do not add space heating equipment if not absolutely necessary.

2. Offices should not be heated above 72° F.

3. Factory areas, not including warehouses and storage spaces, should not be heated above 65° F.

4. Factory areas used for sedentary operations such as inspection, etc., should not be heated over 70° F.

5. Wash and locker rooms should not be heated over 72° F.

6. Toilet rooms only should not be heated above 65° F.

7. Dining rooms, cafeterias and lunch rooms should not be heated above 72° F.

8. During non-working periods such as nights, Saturdays, Sundays and holidays, buildings should not be heated above 40° F. Be careful of sudden cold snaps that might cause piping in buildings to freeze at the lower temperatures.

9. Make sure that boiler flues are kept clean so that maximum boiler efficiency is obtained. Be sure that drafts are correctly adjusted on boilers; that the fires are cleaned properly; and, where your coal is stored on the ground, be sure it is all picked up and used instead of leaving it scattered on the ground.

10. Make sure there are no leaks in pipe lines or storage tanks where oil systems are used.

11. Make sure all gas lines are tight to prevent leakage.

12. Do not start fires in industrial furnaces too far ahead of the time needed.

13. Do not reduce temperatures of industrial furnaces by operating a reducing flame condition. Reduce flow of fuel.

14. Operate industrial furnace equipment at the proper temperature for the job. Do not overheat.

15. Get the maximum fuel-to-metal charge ratio on all melting equipment such as cupolas, reverberatory furnaces, open hearth furnaces, etc.

16. Electric lights and electric power represent use of fuel. Therefore, particular attention should be paid to turning out lights, shutting off motors and electrical heating furnaces when not needed. Every KWH of electrical energy saved will save approximately 1½ lb. of coal. When you have burned a 100-watt lamp for 10 hours you have used 1½ lb. of coal.

By all means, make it someone's responsibility in your plant to see that the above requirements are carried out and that an educational program is carried on among your employees to convince them of the vital need of fuel conservation.

Jas. R. Allan

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In explaining a routine for the stabilization of the variables of foundry procedures, this article points out the possibilities for increased production through the correct training of personnel, control of processes and reduction of scrap losses. The author states that the applied principles, which are in existence in a light metal foundry, are applicable to any foundry.

Maintaining Production Standards Through the Principles of Foundry Control

By Robert E. Ward

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THE rapid expansion of foundries producing materials of war has necessitated the hiring of thousands of inexperienced men and as a result, has placed a tremendous burden on the foundrymen whose jobs are to increase production, train and supervise new men, as well as to insure the quality of the manufactured product.

With the present increase in production and the labor turnover, it is sometimes necessary to promote men to positions for which they have been trained very hastily, since it is no longer possible to acquire a sufficient number of trained men from outside sources. This is especially true of foundries manufacturing aluminum and magnesium castings, materials which were not so widely used before the war and which are now in large demand for manufacturing airplanes.

Aside from foundries manufacturing aircraft castings, the pre-war light metal foundries were more or less unfamiliar with the rigid requirements for highly stressed, heat treated aircraft castings. Today, a large percentage of the light metal castings are of this type. It is for this reason, together with the production difficulties resulting from rapid expansion, that a good system of foundry control is essential for efficiency of operation throughout the plant.

This article describes a practice now in operation which has proved satisfactory as a means of increasing production through the training of men, control of processes, and reduction of scrap losses. Although it is in existence in a light metal foundry, it can be applied directly to any foundry.

Foundry Metallurgy Control,

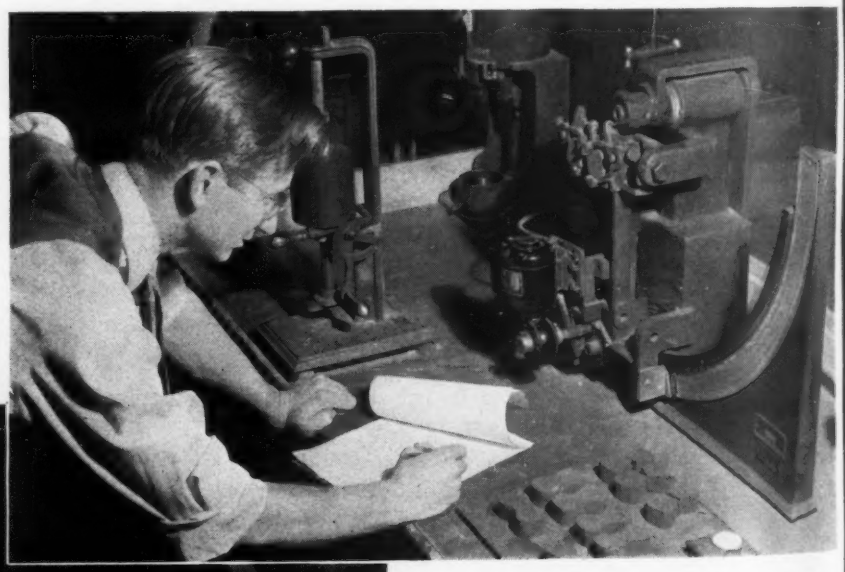


Fig. 1—Sand testing, a necessary procedure for efficient foundry operation.

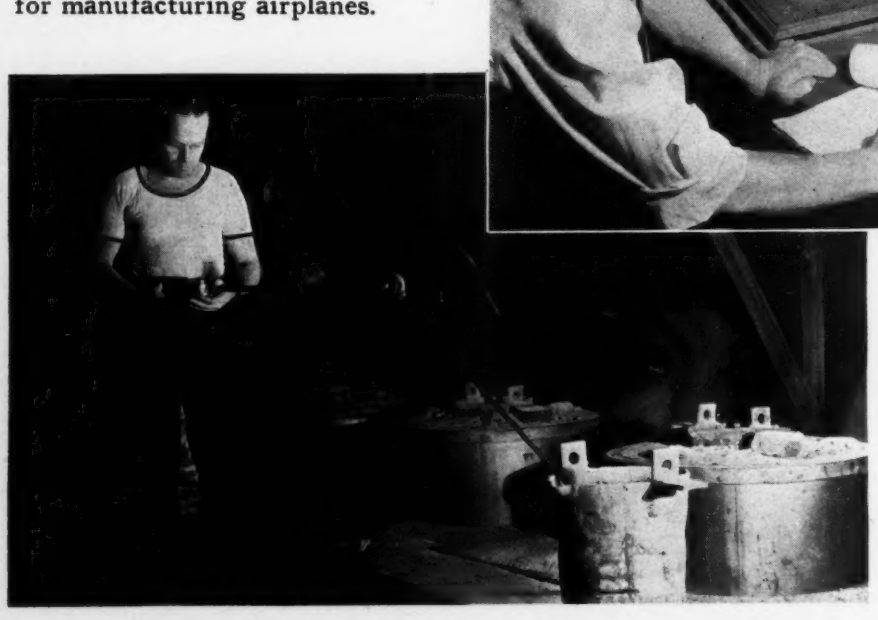


Fig. 2—Control man checking temperature of superheated magnesium alloy cooling to pouring temperature.

as the system is called, is directed by the metallurgical department which reports to the foundry management. In order to have correct control, the proper authority must be delegated so that no time will be lost in discussing matters of policy.

Good control is the adherence to a satisfactorily established procedure, it is the step taken to

Fig. 3—Analysis of combustion products of oil-fired furnace being made to increase melting pot life through controlled combustion.

insure the desired result. It is necessary, therefore, to establish a workable procedure and adhere to it as closely as possible. Starting with incoming raw materials and ending with the finished casting, the following are phases of foundry practice which require close control, any one of which, improperly executed, might result in inferior castings or decreased efficiency:

1. Proper sampling, analyses and testing of incoming sand, sand additions and metals.
2. Identification of materials in storage.
3. Preparation of sand.
4. Testing of molds and cores.
5. Melting and pouring practice.
6. Handling of scrap metal.
7. Heat treatment.
8. Routine temperature checking of furnaces, ovens and pyrometers.
9. Chemical treatment baths.
10. Chemical and physical testing.

These are phases of foundry practice to be controlled by the metallurgical department which is supervised by men apart from the production department, these supervisors must be "production conscious." They are as vital to a foundry as fuel for the furnaces, if efficiency and quality are desired.

To have control of all of these phases requires additional employees, perhaps, but their salaries are more than paid by the benefits that result. It is not easy to obtain men with experience in these lines but, with a nucleus of trained technicians, it is not a difficult problem to educate men and women for their particular tasks. The control is routine so that, with a short training period, a person can qualify for his phase of the control system.

Results Justify Cost

Since an analysis is no more representative of a lot of material than is the sample from which it was made, it is important that the sampling be done properly, each time in the same way. There are standard sampling procedures and these should be followed to the letter.

Fig. 4—Routine check of operating temperatures of heat treating furnace with portable potentiometer and calibrated thermocouple.

Although sand and metal can be purchased to specification, it is a good practice to test them thoroughly before use. Mistakes occur during shipment and handling, and it is well to catch errors before time and money are consumed in making the castings.

After the metal and sand are tested and approved, they should be stored, properly identified, and placed in the hands of a sand or metal control man whose sole responsibility is to see that the material is transported in the proper quantities to the desired places at the right time.

Control plays a vital part in the preparation of the sand. Calculation of the proper additions to attain the desired properties in the resultant mix is sand control; checking the properties of the mixed sand is sand testing. If properly controlled, the final mix should always have the desired properties.

For example, in a foundry where heaps of molding sand are located near each group of molders and are reconditioned for reuse on the spot, sand control plays an important role, especially on long runs of the same parts. It is not possible to check accurately the moisture content of sand as it lies on the floor ready for reconditioning, after having been shaken from the molds, since the moisture content is non-uniform from previous use.

Importance of Sand Control

The only way to determine the moisture content is to put the sand through a conditioner to make it uniform. Then, after determining the moisture content and calculating the necessary water addition, the sand must again be conditioned.

Fig. 5—Determination of sulphur dioxide concentration in magnesium heat treating furnace atmosphere. This gas, in concentrations of 0.5 per cent to 1 per cent, reduces the fire hazard in heat treating magnesium alloys.

If, after the moisture drop is once determined for certain castings and these castings are always run from the same heap of sand, it is a simple matter to make the same addition each time and be reasonably sure of obtaining the desired properties in the sand after conditioning only once. When this is done for all large production castings, considerable time is saved for each run.

Control Minimizes Tests

Sand testing of prepared molding and core sand should be conducted to keep a constant check on the properties of the sand and cores. This is especially true in reclamation systems where the percentage of fines in the molding sand tends to decrease. If good control is exercised and proper additions are made before mixing, these tests are minimized but they should not be eliminated.

In magnesium foundries, a periodic check on the inhibitor content of the sand is necessary. Should a large casting burn because of too little inhibitor in the sand, the loss is far greater than the cost of a simple test of the sand.

Good melting and pouring practice is so necessary that it has been found advisable to place an observer at each pouring station. It is his responsibility to see that the melting pots are properly cleaned and coated, and that the metal is charged, melted and fluxed correctly.

He also sees that the metal is poured in the right manner and at the right temperature. It is a full time job for a man, and it assists the melting foreman so that he may do his job better. Too much emphasis cannot be placed on this phase of foundry control.

Proper segregation of foundry and machine shop scrap must be accomplished in order to avoid contamination on remelting. Painting gates and risers with charactertistic colors for various alloys is an ideal way of segregating foundry scrap.

Reducing Scrap Losses

However, care must be exercised that chills, core wires, sand and other impurities are not charged in the remelt furnace. Likewise, it is necessary that machine shop scrap be segregated by a man familiar with the parts or markings on the castings, in order to prevent contamination. Bolts, inserts, liners, etc., of foreign analyses must be removed before remelting the scrap. This is especially true of steel parts in aluminum alloys.

In order to obtain maximum physical properties, it is necessary that castings are heat treated properly. If furnaces are not equipped with automatic controls and temperature recording charts, close supervision is required.

If recording equipment is installed, periodic checks on the charts are desirable. The charts should be initialed by the control man during each visit. If a furnace atmosphere is employed in heat treatment, this also should be checked periodically. Castings should be loaded into the furnace in a manner that will prevent localized hot spots and warping.

Insuring Uniform Heat

Another of the phases of foundry control is the periodic check of temperature recording instruments on furnaces, core ovens and at melting stations, as well as temperature checks inside furnaces and core ovens to insure uniform heating.

A portable potentiometer with a calibrated thermocouple for checking furnace temperatures is a necessary item, for an incorrect reading recorder on a furnace is almost as bad as none at all, if the error is not detected. Numerous holes should be drilled in all furnaces for insertion of an exploring thermocouple. They should be supplied with caps for closing them when not in use.

Control of the composition of atmospheres in direct oil-fired melting furnaces will give increased pot life and reduce lost time in maintenance. It was found that excessive oxygen in the combustion products surrounding the melting pots caused rapid scaling and resulted in short pot life.

The installation of gas analyzers has increased the pot life considerably. The analyzers should be checked periodically to insure that they are functioning properly.

Chemical treatment baths must be analyzed regularly to keep their concentrations within specified limits, and to discard the baths when they are no longer useful. Simple chemical tests and few pieces of apparatus are usually all that is required.

Control in Test Bars

Chemical and physical testing of chemical coupons and tensile test bars, representing the various melts and heats, is the last and most important part of foundry control, for it is on the basis of these tests that the castings are released. Procedures should be set down for the analysis of each alloy and followed closely. No changes should be made without the approval of the chief chemist.

Physical tests, likewise, should be standardized to the smallest detail. All samples for test should be obtained by a foundry control man and marked immediately to prevent loss of identity.

With the possible exception of the chemists and the supervisors, the men and women necessary for a complete control program can be average persons without previous experience. A thorough training which, since it is highly

Fig. 6—Physical testing of tensile bars, cast and heat treated along with the castings made in the foundry.

specialized, takes only a short period of time pays large dividends that will more than justify the original cost.

The men responsible for the handling of metal are told the reasons why contamination should be avoided; the men observing melting and pouring are given a full picture of what takes place in the metal and what to look out for in casting; the man whose job it is to check furnace temperatures knows the reason for doing it. With a thorough understanding of their jobs, the men have offered many helpful suggestions.

Record Indicates Value

There may be some question as to whether or not the benefits of foundry control would warrant the expense. A record kept over a period of six months has shown a steady reduction in scrap loss, an improvement in properties of the castings and increased production efficiency. Furthermore, only men who appear capable of assuming responsibility and exercising supervision are hired, so that after a few weeks of training and a few months of experience they are well qualified for supervisory production jobs, positions which are difficult to fill today.

X-ray control finds its place in the inspection of sample castings made from a new die or pattern and in spot checking production runs of castings not necessarily specifying X-ray inspection. A thorough check of sample castings will aid in determining the proper gating and risering. Experimental castings should be made until a sufficient margin of safety of quality has been attained to guarantee few rejections when production is started.

Avoid Changes During Run

After the proper gating, sand conditions, pouring temperature and other related factors have been established, nothing should be changed while the casting is running in production, and every effort should be made to adhere as closely as possible to the procedure as set down for each casting. If, for some reason, the casting does not run satisfactorily in production, it should go back on an experimental basis until the necessary changes have been made and a new procedure has been established which yields good castings.

Foundry control, therefore, is the stabilization of the variables of foundry procedures. There are many. The control mentioned in this article aims to stabilize the variables having the most effect on the quality of the finished castings. The more rigid the control, the less the variation in quality. When patterned after satisfactory experimental castings, this means fewer scrap castings, and more good castings from the foundry to help win the war.

Plan Steel and Gray Iron Congress Papers

THE Steel and Gray Iron Division Program Committees under the chairmanship, respectively, of C. H. Lorig, Battelle Memorial Institute, Columbus, Ohio, and F. J. Walls, International Nickel Co., Detroit, met in Chicago October 19 to plan their part in the program of the 1944 War Production Foundry Congress.

Mr. Lorig presented a suggestion for papers relating to steel foundry practices and the committee approved a schedule of four sessions, to cover shop practices, steel properties and melting practices, heat treatment, and steel foundry sand control. In all, nineteen steel papers and committee reports have been scheduled. Recommendations also were made for the Steel Division round-table meeting to be included in the steel section of the Congress.

The Gray Iron Program Committee formally made plans for seven sessions, four to be held as shop course meetings, and three for technical and research papers. Shop course sessions will cover chill tests and cupola practice.

The technical sessions are to cover the completion of the symposium begun at the 1943 Congress on application of cast iron. In addition, a series of papers will be presented on centrifugal castings and other papers will deal with special war production practices in gray iron shops.

Fig. 7—Both the ingot metal and the finished castings are checked for chemical composition.

Dietert Gives Test Apparatus to A.F.A.

THROUGH the courtesy of H. W. Dietert, Harry W. Dietert Co., Detroit, a new dilatometer soon will be installed at Cornell University, Ithaca, N. Y., to hasten research work being conducted there on high temperature properties of foundry sands. Presentation of the instrument by Mr. Dietert was announced at a meeting of the A.F.A. Foundry Sand Research subcommittee sponsoring the investigation, and it is expected the dilatometer will be delivered to the university in the near future. The gift will assist materially in more rapid accumulation of data.

In addition, the Board of Directors of the Association has appropriated additional funds to employ an assistant to Douglas C. Williams, A.F.A. Fellow at Cornell. Thus, as a result of Mr. Dietert's generosity, it is expected that considerable information on the behavior of foundry sands at elevated temperatures will be made available to the industry at the annual meeting of A.F.A. in Buffalo next April.

WPB Issues New Conservation Chart for Brass-Bronze Castings

A NEW edition of the Conservation Chart for Brass and Bronze Castings was issued recently by the Conservation Division of WPB, replacing the "Down-Grading" chart provided earlier this year as a guide to engineers and designers in specifying less critical grades of materials. Like the "Down-Grading" chart, published in the February issue of *American Foundryman,* the new edition urges specification changes based on critical study of end use.

In a foreword by Carter S. Cole, Chief, W.P.B. Conservation Division, Metals Branch, it states that the primary objective of the work is a better utilization of available material for maximum efficiency in the war effort. The chart is accompanied by a table (see Table 1) giving a cross-reference to the applicable approximately equivalent specifications.

Referring to past conservation work, Mr. Cole stated: "In nine months, during which foundry output has increased 17 per cent, the use of new copper by ingot makers and foundrymen has decreased 22 per cent. That represents an achievement that is saving thousands of tons of primary copper per month."

Since publication of the original chart, it is stated, tin-bearing copper-base alloy scrap has become much less readily available. On the other hand, fire cartridge cases are being returned from the battlefields in quantities in excess of what can be readily used by the brass mills. This should assist ingot makers in compounding regular manganese bronze.

alloys retain much their same relative positions in the chart as before, except that Naval brass, due to specification changes, is moved over into the column headed "Scrap." (See Fig. 1.)

Some of the alloys suggested as substitutions, it is stated, are superior to those of the alloys that they can replace. Manganese bronze, for instance, is a higher strength alloy than Composition "G" or "M" on the chart. It does not, however, have the same properties as a bearing metal, nor the same resistance to corrosion, nor is it useful for intricate pressure castings.

Table 1

CONSERVATION SPECIFICATIONS FOR BRASS AND BRONZE COOLING

Alloy	*ASTM*	*Army & Federal*	*Navy*	*AMS*	*SAE*
Composition "G"	B 143, 1A & 1B; B 60	QQ-B-691a - 5	46M 6(INT) "G"	4845A	62
Commercial "G"	B 143, 2B & 2C	QQ-B-691a - 6	46B 5i "P-c"		
Composition "M"	B 143, 2A; B 61	QQ-B-691a - 1	46B 8g "M"		
85-5-5-5	B 145, 4A; B 62	QQ-B-691a - 2	46B23c "Oz-c"		40
81-3-7-9	B 145, 5A	QQ-B-691a -11	46B24d		
80-10-10	B 144, 3A			4842	64
84-8-8	E-B 144, 3Y	QQ-B-691a - 8	46B22(INT) "II"		
83-7-7-3	B 144, 3B	QQ-B-691a -12			660
80-7-10-3	E-B 144, 3X				
Naval Brass	B 146, 6C	QQ-B-621 - A	46B10(INT) "N-c"		
72-1-3-24	B 146, 6A	QQ-B-621 - C	46B11(INT)		
68-1-3-28	B 146, 6B	QQ-B-621 - B	46B11(INT)		41
Silicon Bronze		QQ-C-593	46B28(INT)		
Aluminum Bronze	B 148, 9A & 9B	QQ-B-671a	46B18c		68
H. S. Manganese	B 147, 8B & 8C	QQ-B-726b B & C	46B29(INT) "MA-C"	4862	
Regular Manganese	B 147, 8A	QQ-B-726b - A	49B 3e "Mn-c"	4860	43
Leaded Manganese	B 147, 7A	QQ-B-726b - D			

Note: Specifications, as shown, are approximately equivalent but may not in all cases be interchangeable for procurement and inspection.

The new chart emphasizes the desirability of changes into manganese bronze and yellow brass, with less emphasis on the changes into the secondary tin-bearing copper-base alloys. All

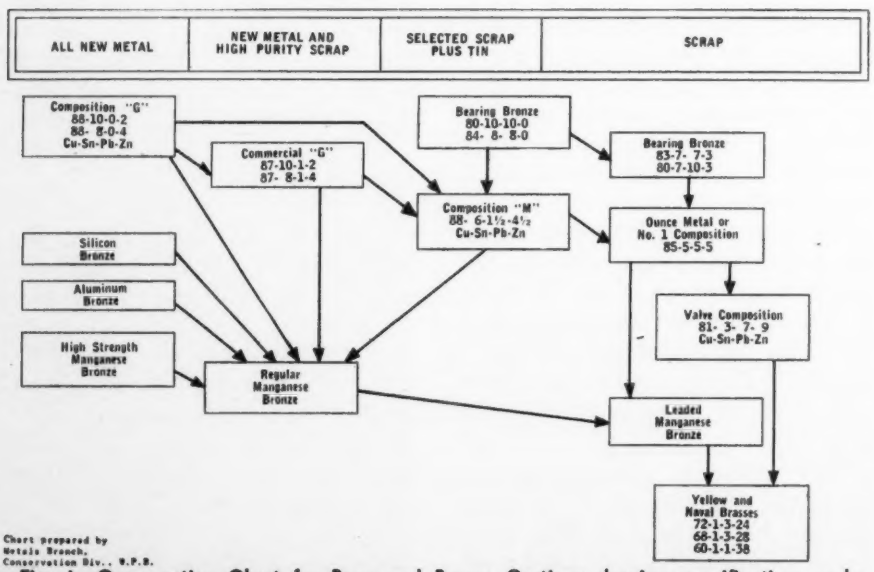


Fig. 1—Conservation Chart for Brass and Bronze Castings showing specifications and material requirements.

Recent specification changes, looking toward a standardization of alloys, apparently have narrowed the yellow brass specifications to the three covered by Federal Spec. QQ-B-621 and A.S.T.M. Spec. B146. Other changes have been made since the chart was first issued so that today the specifications as listed approach even greater standardization than at any time in the past.

It is suggested by WPB that ingot makers, foundrymen and others having direct knowledge of items where changes can be further made to conserve critical materials should bring them to the attention of those responsible for present specifications.

Program of 1944 Foundry Congress and Show To Concentrate on Wartime Foundry Needs

PLANS for the 3d War Production Foundry Congress and Foundry Show, to be held in Buffalo, N. Y. next April 25-28, are being made with full consideration for the vital job assigned the Foundry Industry in war production. Today, castings are recognized as the "No. 1 Critical Material," a fact which undoubtedly will permeate every activity of this, the 48th, Annual Meeting of the American Foundrymen's Association.

In keeping with the custom of holding an Exhibit of materials, equipment and supplies for foundry use every other year, a main feature of the 1944 Congress will be the Foundry Show. Both the Congress and Show will be staged in Buffalo's new Memorial Auditorium, located right in the downtown district and with the finest facilities for both exhibits and meetings that A.F.A. has ever had to offer for an event of comparable size.

A "Stripped for Action" Show

When the A.F.A. Board of Directors authorized in July the holding of a Foundry Show, they had in mind an event which would definitely emphasize products and services of value to a wartime industry, with window dressing having "non-priority" rating. Accordingly, restrictions placed on the Show were intended to cut down the use of labor in building costly displays, minimize display expense to exhibitors and, in keeping with the request of the Office of Defense Transportation, to conserve transportation space.

In keeping with these wartime considerations, standard booth equipment will be provided all exhibitors at the 1944 Foundry Show, and the so-called "built booth" display will be restricted. The "sky's the limit" type of exhibit will be missing in Buffalo, but will be more than compensated for by presentation of many new developments and product applications that have grown out of America's war production experience.

Preliminary interest and the encouraging response to initial announcement of the 1944 Foundry Show indicates that this type of limited exhibit will be popularly accepted by the equipment and supply industry. Many firms are well aware that the foundry industry has lost many key men to the armed services, and that the men responsible for production today must have the utmost information available on problems of control, production and quality.

Broad Technical Program

Technical features of the Congress will be of wide and timely interest, with developments and practices applying to current problems in the production of cast metals for war use thoroughly covered. A number of "off the record" discussions of special war production problems are being arranged. Separate programs will deal with each of the cast metals, each division of A.F.A. being fully represented.

Several symposia are planned, one on malleable iron specializing in heading and gating, and one for steel men covering shop practices, melting practice, heat treatment and sand control. A third symposium of current interest is that of centrifugal casting developments.

Manganese bronze castings work due to the increasing use of alloy castings in meeting wartime demand will be stressed at brass and bronze meetings. Sessions of the aluminum and magnesium divisions will be of outstanding interest, as developments in these metals have been greatly accelerated in the past two years, and many foundries entering into this work are eager for all information obtainable.

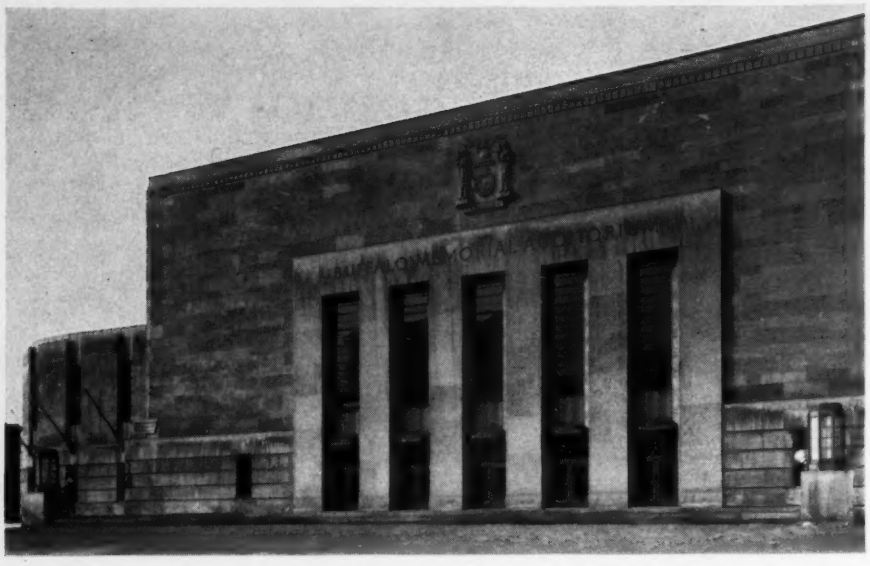
2nd Foundation Lecture

The annual Foundation Lecture of the Association, initiated in 1943, will be presented by Dr. H. W. Gillett, Chief Technical Advisor, Battelle Memorial Institute, Columbus, Ohio. Dr. Gillett, an A.F.A. medalist and internationally recognized authority on metallurgy, has chosen "Cupola Raw Materials" as his subject.

Gray iron foundrymen will find this subject further developed in reports of the Committee on Cupola Research, now engaged in preparing an important handbook of cupola operation.

While the formal program for the Buffalo meeting will of course concentrate on the practical and technical needs of the Foundry Industry, discussions undoubtedly will take place on post-war problems. Every month that passes finds such problems receiving more attention, and in

Buffalo's famed Niagara Square will become a familiar sight to foundrymen next April, during the 1944 Foundry Congress. Left, the City Hall; in the center foreground, the McKinley Monument; right ,Statler Hotel.



Through this entrance from "the Terrace" foundrymen will enter Buffalo's new Memorial Auditorium to register for the 3d War Production Foundry Congress and Foundry Show, April 25-28, 1944. Both meetings and exhibits will be held in the Auditorium, located right in the downtown district.

the light of the increasing interest in post-war planning today, this subject may prove to be one of the most informative and thought-provoking of the entire Buffalo Congress.

Work of Core Test Committee Discussed

THE Core Test Subcommittee of the Foundry Sand Research Committee, under chairmanship of E. C. Zirzow, National Malleable and Steel Castings Co., Cleveland, met in Chicago October 21 to discuss progress of its activities. Major topic considered was the revision of present tests to determine the properties of cores and to propose new tests.

Various members of the committee reported on the necessary revision to present tests and proposed several new tests, including those on the ability of the core to absorb moisture, methods of determining gas content of cores, and evaluation of the strength of core paste.

Another meeting of the committee is planned for the near future which further progress is to be reported. Membership of the Core Test Subcommittee is as follows:

Chairman, E. C. Zirzow, National Malleable and Steel Castings Co., Cleveland; *Vice Chairman,* B. M. Weston, Aristo Corp., Detroit; *Secretary,* Emile Pragoff, Jr., Hercules Powder Co., Wilmington, Del.; Samuel Appleby, Buffalo Foundry & Machine Co., Buffalo, N. Y.; H. J. Cole, General Electric Co., Schenectady, N. Y.; E. R. Crosby, Smith Facing & Supply Co., Cleveland; H. W. Dietert, Harry W. Dietert Co., Detroit; H. E. Donnocker, Ottawa Silica Co., Ottawa, Ill.; M. E. Gantz, American Magnesium Corp., Cleveland; H. K. Salzberg, Casein Co. of America, Bainbridge, N. Y.; F. J. Sedlak, Ohio Brass Co., Mansfield, Ohio; R. D. Walter, Werner G. Smith Co., Cleveland; and E. E. Woodliff, Foundry Sand Service Engineering Co., Detroit.

Executive Committee of Association Meets

THE regular monthly meeting of the A.F.A. Executive Committee was held October 20 in Chicago, with President L. C. Wilson, Reading Steel Casting Div., American Chain & Cable Co., Reading, Pa., presiding. All members attended, including the following:

Vice-President R. J. Teetor, Cadillac Malleable Iron Co., Cadillac, Mich.; Directors R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J.; S. V. Wood, Minneapolis Electric Steel Castings Co., Minneapolis; D. P. Forbes, Gunite Foundries Corp., Rockford, Ill.; and Max Kuniansky, Lynchburg Foundry Co., Lynchburg, Va.

A special report of the Industrial Hygiene Codes Committee was presented by Secretary R. E. Kennedy, announcing formulation of a new Code of Recommended Practices for Industrial Housekeeping and Sanitation. The code, seventh of the A.F.A. codes, was approved for publication, and congratulations tendered the committee and its chairman, Jas. R. Allan, International Harvester Co., Chicago, for its splendid work.

Additional financial assistance was voted for the sand research being carried on at Cornell University, including special research on high temperature properties of sand. This work is supervised by an A.F.A. committee composed largely of steel foundry representatives.

Several reports of Board committees on finance, membership and by-laws revision were presented and discussed at the meeting. Proposed revision of the Association's by-laws were further checked and now are being submitted to the Board for approval, after which they will be voted on by the entire A.F.A. membership.

It was decided that the proposed Fall or Winter meeting of Chapter Delegates, although highly favored, should be withheld due to present traveling conditions. However, the annual Chapter Delegate Meeting at the 1944 Foundry Congress was approved.

Two comprehensive reports on absenteeism recently were issued by the National Industrial Conference Board as a part of a Personnel Policy Study. Report No. 53 covers "The Problem of Absenteeism," and Report No. 46 deals with "Reducing Absenteeism." While all studies of the Board are issued primarily for its members, it is suggested that others interested should write direct to the organization, 247 Park Ave., New York, for information on these studies.

The A.F.A. Stork Delivers Twins!

Texas and Rochester Chapters Approved by Board of Directors

THE official organization meeting of the Texas Chapter of A.F.A., the 25th Chapter in the Association family, was held November 26 at Houston, following approval of the Texas group's petition by the national Board of Directors. Thus, for the first time, A.F.A. becomes officially represented in the Southwest, a significant commentary on the growth of foundry activities in that area during the past several years.

The petition for admission was drawn up at a meeting of some 110 Texas area foundrymen October 29, at the Rice Hotel, Houston, and was signed by 46 active boosters, the largest number to sign any chapter petition previously submitted. Officers and directors of the Lone Star "baby" will be announced in the January issue of *American Foundryman.*

Organization work initiated at the St. Louis Foundry Congress last April, has been carried on by a committee of Texas foundrymen, headed by F. M. Wittlinger, Texas Electric Steel Castings Co., Houston. J. O. Klein, Texas Foundries, Inc., Lufkin, served as Vice-Chairman, and H. L. Wren, Barada & Page, Inc., Houston, as Secretary.

Other committee members included: A. S. Cramer, Dickson Gun Plant, Houston; L. H. August, Hughes Tool Co., Houston; T. N. Russell, Service Pattern Works, Houston; H. F. Elmer, Dedman Foundry & Machine Co., Houston; W. A. Raymond, Houston Foundry & Machine Co., Houston, and Wm. Bryant, Jr., Oil City Brass Works, Beaumont.

The featured speaker at the October meeting was R. G. McElwee, Foundry Alloy Div., Vanadium Corp. of America, Detroit, and Vice-Chairman of the Detroit chapter, who stressed the value of round-table meetings and discussed the problems of the industry as observed during his service with the Gray Iron section of the WPB, in Washington. He particularly urged the foundry industry to cooperate more closely in solution of the problems and difficulties that must inevitably be met and solved by the producers of castings in the post-war period.

Robt. E. Kennedy, Secretary of A.F.A., spoke briefly on the history and national activities of the Association, as he outlined the procedure of chapter organization. Augmenting this were short talks on chapter advantages by: H. A. Nelson, Hill & Griffith Co., Birmingham, Ala., Secretary-Treasurer of the Birmingham chapter; John W. Kelin, Federated Metals Div., American Smelting & Refining Co., and L. J. Desparois, Pickands Mather & Co., both directors of the St. Louis chapter; and John H. Spillane, Electric Metallurgical Sales Corp., of the Chicago chapter.

MARKING the second Chapter admitted to A.F.A. in a single month, the Board of Directors approved late in November a petition signed by 61 enthusiastic foundrymen in the Rochester, N. Y., area for formation of a Rochester Chapter. In becoming the 26th Chapter of the Association, Rochester's petitioners exceeded even the previous record number who sponsored the Texas Chapter petition.

The official Rochester Chapter organization meeting will be held as early as possible in December. At that time the traditional cast iron baby rattle, emblem of all new A.F.A. chapters, will be presented after being in possession of the Texas group for only a short period of time. Each new chapter retains the rattle until another chapter is organized.

Formation of the Rochester Chapter occurred at a meeting held at the Seneca Hotel in that city November 10, with over 80 enthusiastic members and guests present. The meeting was arranged by Henry B. Hanley, foundry superintendent, American Laundry Machinery Co., past Director of A.F.A.

Mr. Hanley opened the meeting and discussed Association activities and the possibilities for a local chapter. He then introduced National Secretary R. E. Kennedy, who outlined the organization and functioning of A.F.A. chapters. With unanimous approval of the attendance, a petition was presented and forwarded for acceptance.

Temporary directing and nom-

inating committees were elected at the time, with the following personnel:

General Committee: David D. Baxter, Sterling Mfg. Co.; James E. McHenry, Gleason Works; I. A. Billiar, Symington-Gould Corp.; E. N. Van Billiard, Progressive Foundry Co.; Harold King, University of Rochester; Robert J. Maddison, Whitehead Bros. Co.; Walter F. Morton, Josiah Anstice & Co.; Herman Hetzler, Hetzler Foundry Co.

Nominating Committee: E. N. Van Billiard; H. B. Hanley; D. E. Webster, American Laundry Machinery Co.; C. Vaughn, Ritter Co.; J. P. Dunphy, Symington-Gould Corp.; L. C. Gleason, Gleason Works; Walter G. Brayer, Bausch & Lomb Optical Co.; N. F. Clement, Rochester-Erie Foundry Co.; Donald H. Rishor, Geo. F. Pettinos Inc.; R. J. Maddison; Walter F. Morton; Harold King; Thomas Boyd, General Railway Signal Co.; Ralph Fava, Sargent & Greenleaf Inc.

Set Up Die Castings Program for Congress

THE Die Castings Subcommittee of the A.F.A. Aluminum and Magnesium Division held its first formal meeting October 20 in Chicago. This committee is under chairmanship of J. C. Fox, Doehler Die Casting Co., Toledo, Ohio, other members being:

Dr. D. Basch, General Electric Co., Schenectady, N. Y.

C. E. Nelson, Dow Chemical Co., Midland, Mich.

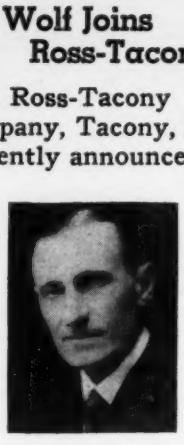
R. U. Siena, Sperry Gyroscope Inc., Brooklyn, N. Y.

R. E. Ward, Eclipse-Pioneer Div., Bendix Aviation Corp., Bendix N. J.

A program was set up for preparation of data for formulating recommended practices for the die casting of aluminum, magnesium, zinc and other alloys. Dr. Basch prepared an outline for these recommended practices, the actual work of preparation to be divided among the members of the subcommittees. It is expected that this material will be ready for presentation to the annual meeting of A.F.A. next April.

Fred L. Wolf Joins Ross-Tacony Staff

THE Ross-Tacony Crucible Company, Tacony, Philadelphia, recently announced the appointment of Fred L. Wolf as Executive Vice-President.



Fred L. Wolf

Until his resignation, November 2, Mr. Wolf was connected with the WPB as Deputy Director of the Mica-Graphite Division, Minerals Bureau.

He is a graduate of the University of Michigan and in May, 1941, was awarded the John A. Penton Gold Medal of the American Foundrymen's Association for his outstanding contribution to the non-ferrous and malleable iron industry. At present Mr. Wolf is serving on the Brass and Bronze Div. of the A.F.A., representing that division on the B-5 Committee of the A.S.T.M.

WPB Issues New Chart On Aluminum Alloys

RECOMMENDATIONS for substitution of aluminum alloys made from scrap to replace high grade casting alloys have been issued by the Conservation Division of WPB, to encourage most effective use of remelted scrap ingot. The chart is intended to reinforce Conservation Order M-1-i, restricting the use of aluminum and its alloys to specified essential applications. Through most effective use of these materials, it is believed, the end of 1943 may see most of the essential war service requirements for alum-

Table I

APPROXIMATE EQUIVALENT SPECIFICATIONS FOR ALUMINUM CASTING ALLOYS

(Prepared by Conservation Division, W.P.B.)

Commercial.	*Federal.*	*Army Ord.*	*Navy.*	*Aeronautical.*	*S.A.E.*	*A.S.T.M.*
			SAND CASTINGS			
Specification.	QQ-A-601 and E-QQ-A-601	AXS 784	46-A-1(INT) (5/1/42)	Number.	Number.	B 26-42 T
Alloy.	*Class.*	*Class.*	*Class.*			*Alloy.*
220	—	—	—	AN-QQ-A-392-2	324	—
356	3	—	3	AN-QQ-A-394-2	323	SG1
214	5	—	5	AN-QQ-A-402-2	320	G1
142	6	—	—	AN-QQ-A-379-2	39	CN21
355	10	—	—	AN-QQ-A-376-2	322	SC21
195	4	—	4	AN-QQ-A-390-2	38	C1
43	2	—	2	AN-QQ-A-405-3	35	S2
40E	—	—	1	—	—	ZG41
Sec. 355*	—	—	—	—	—	—
Sec. 195	13	13	4a	AN-A-5	E-325	C2
X113-A334*	14	14	—	AN-A-4	E-326	—
108	8	—	—	AN-QQ-A-397-2	—	—
212	9	—	—	AN-QQ-A-399-2	36	CS21
112	—	15	—	—	33	—
12	—	15	—	—	33	CS22
			PERMANENT MOLD CASTINGS			
Specification.	QQ-A-596	....	46-A-15(INT) (2/1/42)	Number.	Number.	B 108-41T
Alloy.	*Class.*		*Class.*			*Alloy.*
356	8	—	8	—	323	SG1
A214	—	—	—	—	—	—
142	3	—	3	AN-QQ-A-379-2	39	CN21
A132	9	—	9	AN-QQ-A-386-2	321	SN41
355	6	—	—	AN-QQ-A-376-2	322	—
B195	4	—	—	AN-QQ-A-383-2	380	CS4
43	7	—	7	—	35	S2
C132	—	—	—	—	—	—
122	2	—	2	—	34	CG1
Sec. 355*	—	—	6	—	—	—
Sec. B 195	—	—	4	—	—	—
A108	5	—	5	—	—	SC1
C113	1	—	1	—	33	C3
			DIE CASTINGS			
Specification.	QQ-A-591	Number	46-A-14(INT) (2/1/42)	Number. AN-QQ-A-366-4	Number.	B 85-42 & EA-B85
Alloy.	*Class.*		*Class.*	*Class.*		*Alloy.*
13X	2	—	2	A1-13X	—	—
218	7	—	7	A1-218	—	—
13	1	—	1	A1-13	305	V
43	3	—	3	—	304	IV
A379	10	AXS 679 (Rev. 3)	—	A1-85X	E306	LXXIX-B
			—	—	E308	LXXIX-A
85	5	—	5	A1-85	307	VII-A
—	—	—	—	—	—	VII-B
81	4	—	4	—	312	XII

*Includes modifications.

inum filled for the first time.

In the accompanying chart, Fig. 1, possible alloy substitutions are indicated by which greater amounts of scrap can be utilized. Sand casting, permanent mold, and die casting alloys are shown separately under four alloy classifications, purities given ranging from maximum primary ingot to maximum scrap. Nominal compositions are shown for each alloy, and heat treatable alloys are enclosed in double lines. For cross reference, several common specifications that are approximately equivalent are given, as shown in Table 1.

It is pointed out that the copper-magnesium-nickel Alloy No. 142 occupies a unique position and should be used only on elevated temperature applications. Because of the nickel content it is not a desirable substitue for other alloys, and for certain high temperature uses suitable alternate materials are not available.

In issuing the chart, it is stated that if a satisfactory, less critical substitute material in some other field can be used, even the lower grades of aluminum should be avoided. Also, if high mechanical properties, specific physical properties, maximum resistance to corrosion or particular casting characteristics inherent in an alloy on the virgin side of the chart are not essential, it is considered a contribution to the war effort to use an alloy containing more scrap.

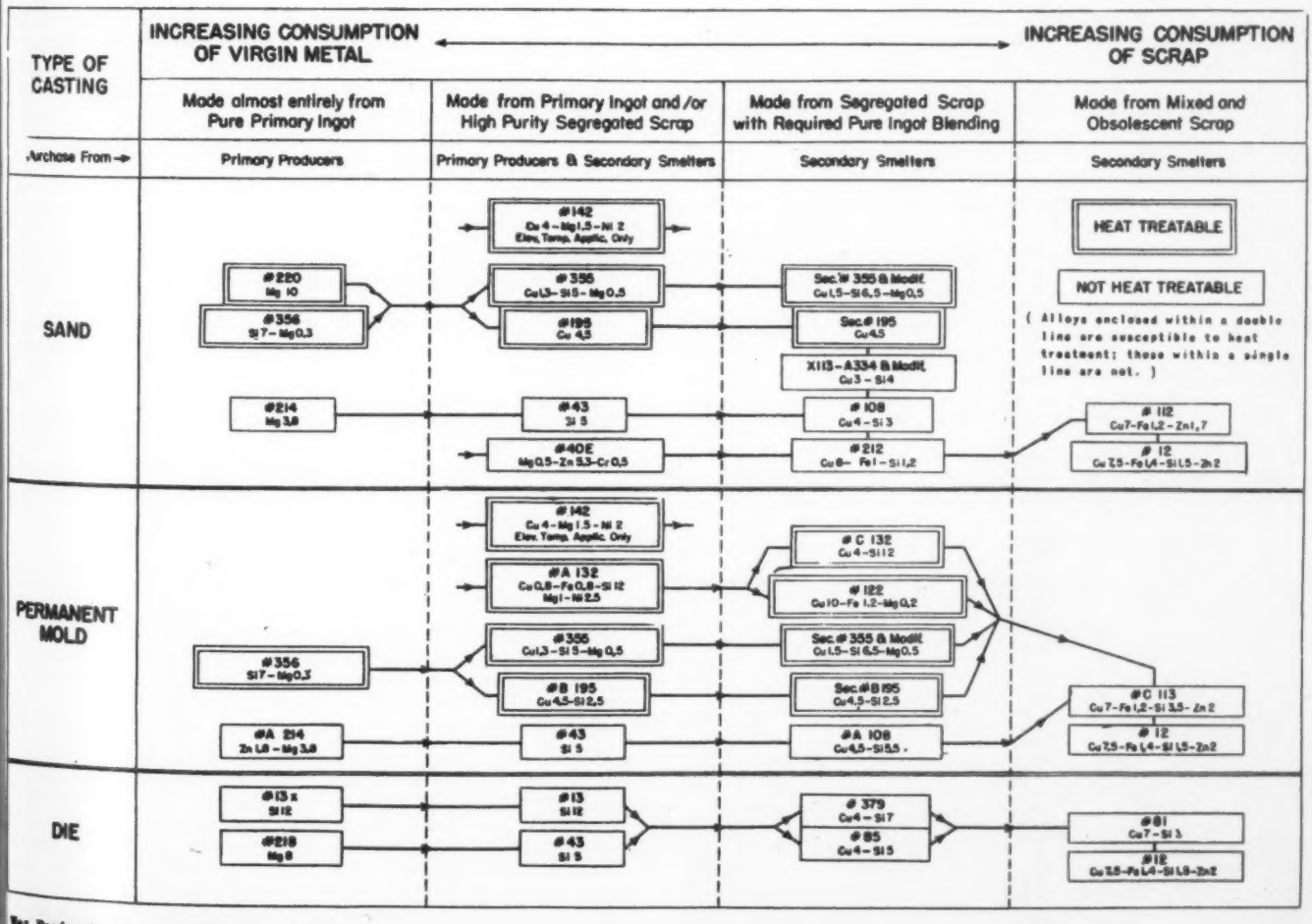
Credit for Achievement

IN REPORTING that 15 graduates completed the first class in iron metallurgy at the Illinois Institute of Technology, the name of A. J. Panozzo, Griffin Wheel Co., Chicago, as winner of the award for completing the course with the highest mark, was misspelled. Mr. Panozzo deserves full recognition for his fine record.

Committee to Study Corrosion Problems

DR. JAS. T. MACKENZIE, American Cast Iron Pipe Co., Birmingham, Ala., is serving as the A.F.A. representative on the American Coordinating Committee on Corrosion. The committee is sponsored by 18 engineering and research societies and foundations, with the purpose of bringing together information which pertains to corrosion problems.

Dr. MacKenzie announces that the committee has formulated a directory of corrosion problems, which also lists those having information on such difficulties. He suggests that any member of the A.F.A. interested in a special castings corrosion problem write him, and he will endeavor to provide information as to those who are working on this problem. This specialized type of service is the primary purpose of the Coordinating Committee.



War Production Board - Conservation Division

Fig. 1—Aluminum Casting Alloys Substitution Chart. Because of WPB directives, some alloys in the second column are available from secondary smelters only in limited quantities.

Your Association presents to the industry herewith the first part of the 7th and latest code of recommended practices for foundry safety and hygiene, never before published. Like all the other codes, it was prepared by the A.F.A. Industrial Hygiene Codes Committee, under chairmanship of Jas. R. Allan. The code also is available in pamphlet form.

A.F.A. Code of Recommended Practices for Industrial Housekeeping and Sanitation

THIS code of recommended good practices for industrial housekeeping and sanitation has been developed by a committee of the American Foundrymen's Association to cover the necessary engineering data and requirements for industrial housekeeping and sanitation, including wash, locker, rest, toilet and lunch room facilities for gray iron, malleable iron, steel and non-ferrous branches of the foundry industry, and has been approved by the Board of Directors of A.F.A.

Many foundries have, in addition to casting cleaning departments, pattern, machine and maintenance departments which are considered integral parts of the foundry operation. Also, in many instances there are additional departments wherein further operations are carried on in the processing of materials where this code may be applied.

The introduction of a large percentage of female workers in industry, due to the war, has brought some problems that have not heretofore been of any magnitude.

Therefore, this code will provide the industry with sufficient data for the minimum requirements of housekeeping and sanitation facilities for both male and female employees.

The technical committee which prepared this code, known as the American Foundrymen's Association Industrial Hygiene Codes Committee, is composed of the following:

Chairman, Jas R. Allan, International Harvester Co., Chicago.
S. B. Hansen, International Harvester Co., Chicago.
E. O. Jones, Belle City Malleable Iron Co., Racine, Wis.
H. G. Gregg, Dodge-Chicago Plant, Chrysler Corp., Chicago.
C. P. Guion, W. W. Sly Mfg. Co., Chicago.
T. C. Hermann, Claude B. Schneible Co., Detroit.
C. F. Larsson, American Air Filter Co., Chicago.
S. McMullan, Western Electric Co., Cicero, Ill.
Nathan Lesser, Deere & Co., Moline, Ill.
R. W. McCandlish, Research Corp., Chicago.
R. B. Parker, American Brake Shoe & Foundry Co., New York.
B. A. Parks, Crane Co., Chicago.
John F. Tobin, American Blower Corp., Chicago.
Secretary, H. Hanson (Miss), American Foundrymen's Association, Chicago.
Conferees: L. C. Stokes, Dept. of Labor, State of Illinois, Chicago.
L. H. Streb, Dodge-Chicago Plant, Chrysler Corp., Chicago.

Section I—Scope

This recommended good practice code describes the necessary fundamental engineering and construction information for the layout, design, installation and maintenance of wash, locker, rest, toilet and lunch rooms and general industrial housekeeping and sanitation facilities for the protection of health and safety of persons and the promotion of good industrial relations.

Section II—Requirements

(A) Minimum

When the word "minimum" is used or implied, or when specific figures are used, it shall be understood that there is no limit as to how much the minimum or specific figures may be exceeded to accomplish the desired result.

Section III—Definitions

(A) "Foundry"

"Foundry" shall mean a building or group of buildings used for the production and processing of ferrous and non-ferrous castings.

(B) Foot Candle

A foot candle means the amount of illumination at a point on a plane 1-foot distant from a source of 1-candle power and perpendicular to the light rays at this point.

(C) Mechanical Air Supply

Mechanical air supply shall mean a system of ventilation where the air is taken from the out-of-doors and forced into the room or work place by power driven mechanical equipment combined with the removal or exhaust of air from the room or work place through windows, doors, skylights, transoms, shafts, ducts, ventilating and other openings and/or a mechanical exhaust system, and such air so supplied shall be tempered and distributed in such room or work place as not to cause discomfort to the employees except that, when a mechanical ventilating system or air-conditioning system is used, not more than two-thirds of the mechanically supplied air to the room or work place may be recirculated, provided means are employed to control the temperature, humidity, odors and dusts, and such quantities of recirculated air may be considered as mechanically exhausted from such room or work place, except that no air shall be recirculated from any toilet, wash, locker, rest room or kitchen, or from any other room where such air might be contaminated by smoke, gases or dusts that might be noxious, dangerous or detrimental to the health of employees.

(D) Mechanically Exhausted

Mechanically exhausted shall mean a system of ventilation where air is mechanically removed from the room or work place by means of power, and discharged out of doors in such a manner that the exhausted air cannot re-enter the room or work place or adjacent buildings, combined with a supply of air through windows, doors, skylights, transoms, and ventilating and other openings and/or a mechanical air supply system, except that, when a mechanical ventilating system or air-conditioning system is used, not more than two-thirds of the mechanically exhausted air may be recirculated provided means are employed to control the temperature, humidity, odors and dusts, and such quantities of recirculated air may be considered as mechanically exhausted in such room or work place, except that no air shall be recirculated from any toilet, wash, locker, rest room or kitchen, or from any other room where such air might be contaminated by smoke, gases or dusts that might be

noxious, dangerous or detrimental to the health of employees.

(E) Natural Ventilation

Natural ventilation shall mean a system of ventilation, the effectiveness of which depends upon natural atmospheric conditions and upon the operation of windows, doors, ventilating and other openings, which are in the control of the person or persons in the room or work place.

(F) Net Open Area of Windows, Ventilating Openings, etc.

The net open area of windows and ventilating openings shall mean that the net open area that such windows and ventilating openings can be opened to the out-of-doors.

(G) Projected Area of Doors, Windows and Other Openings

The projected area of doors, windows and other openings shall mean the gross area of the openings provided in the out-of-doors surfaces of the building for such openings.

Section IV—Housekeeping

(A) Housekeeping

Plants, in order to provide reasonable protection for the health and safety of persons employed, shall be maintained in a clean and sanitary manner.

(B) Storage

All products, supplies and materials, parts or equipment, such as castings, pattern and molding equipment, flasks, bottom boards and the numerous other items, shall be stored in places provided for them consistent with efficient operation, and shall be piled or stored in such a manner as not to cause an accident to any employee.

(C) Accumulation of Refuse

Accumulation of refuse and by-products of operations shall not be allowed to the extent that such accumulations would affect the safety or health of workers.

(D) Safe Disposal of Refuse

Combustible or explosive refuse or by-products, or accumulation of waste, sand and other materials, shall be disposed of at least daily in a safe manner in order to eliminate exposures to fire, accident and health hazards.

(E) Conditions of Floors

All floors used by employees shall be maintained in good repair. All aisles, gangways and passageways regularly used by employees shall be maintained in good repair and shall be kept free of obstructions to prevent employees from tripping and falling.

(F) Care of Floors

The floors of all buildings in which employees work shall be maintained in a clean condition and, as far as possible, in a dry condition, consistent with the type of operations carried on. Where wet processes are regularly carried on, causing wet floor conditions, the floors shall be drained or false floors, platforms, mats or other dry standing places provided.

(G) Sweeping and Cleaning

1. Floors and Gangways:

Floors and gangways shall be kept clean of refuse and sand, and if such floors and gangways are cleaned by the sweeping method they shall be dampened or oiled prior to sweeping, to settle the dust arising from such operations.

2. Cleaning of Buildings and Equipment:

The structural parts of buildings and equipment, as well as fixtures and other contents of the plant, shall be kept sufficiently free from accumulations of dust and dirt so that natural air currents and vibrations in the buildings do not release such accumulations of dust and dirt into the breathing zone. The structural parts of buildings, equipment, fixtures and the like, shall be cleaned in such a manner as to prevent harmful quantities of the dust from contaminating the breathing zone of employees; or respirators shall be furnished to the employees in the affected areas. Major cleaning operations involving the cleaning of building structures shall, as far as practicable, be done outside regular working hours to avoid employees being exposed to heavy concentrations of dust and dirt.

(H) Expectoration

Where cuspidors or receptacles are provided for expectoration, they shall be of such construction that they can be readily cleaned and disinfected; and they shall be cleaned at least once daily, if used, to prevent them from becoming a menace to health.

(I) Eating in Certain Workrooms Prohibited

Employees engaged in non-ferrous melting operations involving the use of lead, zinc, brass and copper, employees working in grinding and polishing rooms on nonferrous materials containing lead, zinc, brass and copper, employees engaged in painting operations, and employees engaged in any other processes where toxic dusts or fumes can be conveyed to the human system by way of mouth, shall not be allowed to lunch on the job; nor shall milk, soft drinks or coffee be brought to the jobs where such hazardous operations are going on. Employees working in such contaminated areas shall be required to wash before eating and facilities shall be provided such as locker room with benches or a lunch room or other equally suitable place, for the use of the employees for eating purposes.

(J) Smoking

Employees shall not be permitted to smoke in pattern vaults or around woodworking or painting operations or where magnesium casting cleaning operations are performed; nor shall employees working in magnesium casting cleaning operations be permitted to smoke in their shop clothing; nor shall such magnesium casting cleaning workers be permitted around any open flames or anyone smoking.

Section V—Ventilation

(A) Cubic Feet of Air Space per Employee in Working Areas

All work rooms in which employees regularly work, other than rooms used primarily for storage and warehouse purposes, shall have not less than two thousand (2,000) cubic feet of air space per person regularly employed, based on gross cubical contents, provided the

Maintenance of clean, adequate lunchroom facilities is an important phase of employer-employee relations. This air-conditioned cafeteria in the foundry employees service building of Caterpillar Tractor Co., Peoria, Ill., serves wholesome food at low cost in sanitary surroundings.

total projected area of doors and windows opening to the out-of-doors is not less than twelve-and-a-half (12½) per cent of the gross floor area of the work room: otherwise, a system of mechanical air supply shall be provided.

(B) Mechanical Air Supply Requirements in Working Areas

Where there is less than two thousand (2,000) cubic feet of air space per person regularly employed in a work room, or where the total projected area of all doors and windows opening to the out-of-doors is less than twelve-and-a-half (12½) per cent of the gross floor area of the work room, there shall be mechanically supplied an amount of clean tempered air on the basis of one of the two following rules, whichever gives the greatest amount of air supply:

(1) For every one hundred (100) cubic feet of air space or fraction thereof, where the air space per person regularly employed in the work room is less than two thousand (2,000) cubic feet, there shall be supplied two (2) cubic feet of air per minute per person, or—

(2) When the projected area of all doors and window openings to the out-of-doors is less than twelve-and-a-half (12½) per cent of the gross floor area of the work room, there shall be supplied two and four-tenths (2.4) cubic feet of air per minute per person, for each one (1) per cent or fraction thereof the projected door and window openings are less than 12½ per cent.

(C) Ventilation of Office, Toilet, Locker, Rest and Lunch Rooms

All offices, rest, toilet, locker and lunch rooms shall be provided with natural or mechanical ventilation to maintain healthful conditions during periods of occupancy, as per the following requirements:

(1) Rooms with Ventilation to the Out-of-Doors:

If offices, rest, locker and lunch rooms have windows or ventilating openings opening to the out-of-doors, and the net open area of such windows and ventilating openings is not less than five (5) per cent of the gross floor area, no mechanical ventilation shall be required.

(2) Rooms with Ventilation to the Out-of-Doors but with a Deficiency of Natural Ventilation:

If offices, rest and lunch rooms have less than five (5) per cent and more than two-and-a-half (2½) per cent of the gross floor area represented by net windows and ventilating openings opening to the out-of-doors, there shall be provided a mechanical supply of clean tempered air of not less than six-tenths (.6) cubic feet of air space per minute per square foot of gross floor area. However, if the net open area of the windows and ventilating openings opening to the out-of-doors is less than two-and-a-half (2½) per cent of the gross floor area, there shall be mechanically supplied, six-tenths (.6) cubic feet of clean tempered air per minute per square foot of gross floor area and there shall be mechanically exhausted, three-tenths (.3) cubic feet of air per minute per square foot of gross floor area.

(3) Rooms without Ventilating Openings to the Out-of-Doors:

If offices, rest and lunch rooms are located in the interior of buildings and with no direct natural ventilation to the out-of-doors and which have less than five (5) per cent and more than two-and-a-half (2½) per cent of the gross floor area of the room, represented by net window and ventilating openings opening to the buildings in which they are located, and if the net area of all windows and ventilating openings to the out-of-doors of that floor of the building plus the office, rest and lunch rooms is not less than five (5) per cent of the gross floor area, no mechanical ventilation shall be required. However, if the net open area of all windows and ventilating openings to the out-of-doors on the floor of the building containing office, rest and lunch rooms is less than five (5) per cent of the gross floor area of the floor of the building including office, rest and lunch rooms, then there shall be mechanically supplied not less than one (1) cubic foot per minute of clean tempered air per square foot or gross floor area to such office, rest and lunch rooms, and there shall be mechanically exhausted one (1) cubic foot of air per minute per square foot of gross floor area.

(4) Kitchens:

Where a room is used for kitchen purposes only, for the preparation of food for employees, there shall be mechanically exhausted four (4) cubic feet of air per minute per square foot of gross floor space, and if the net open area of windows and ventilating openings opening to the outside is less than three (3) per cent of the gross floor area of such kitchen, there shall also be mechanically supplied one and two-tenths (1.2) cubic feet per minute of clean tempered air per square foot of gross floor area.

(5) Toilet and Locker Rooms:

If the amount of net open area of windows and ventilating openings opening to the out-of-doors is less than five (5) per cent of the gross floor area of toilet and locker rooms, there shall be mechanically exhausted one and five-tenths (1.5) cubic feet of air per minute per square foot of gross floor area.

Section VI—Lighting

(A) Lighting Requirements

Where daylight does not provide sufficient illumination, artificial illumination shall be provided in all work areas and other parts of the buildings to which employees are accustomed to having access, to prevent accidents and give reasonable illumination, and such places shall be provided with artificial illumination of not less than the following intensities, measured at floor level, unless otherwise noted:

Rooms and buildings used for storage and stocking of materials, and for warehouse purposes	Not less than 2½-ft. candles
Passageways, aisles and gangways not located in rooms illuminated for other purposes	Not less than 2½-ft. candles
Work places in which employees are engaged in manufauturing and kindred processes	Not less than 10-ft. candles, measured at work level.
Boiler and engine rooms	Not less than 5-ft. candles
Electrical sub-stations and switchboard rooms	Not less than 5-ft. candles
Washrooms	Not less than 5-ft. candles
Locker rooms	Not less than 5-ft. candles
Rest rooms	Not less than 5-ft. candles
Toilet rooms	Not less than 5-ft. candles
Rooms used soiely for lunch purposes	Not less than 10-ft. candles
Kitchen	Not less than 10-ft. candles
Offices	Not less than 10-ft. candles

Section VII—Water Supply for Human Consumption

(A) Potable Water

A source of potable water shall be supplied for all purposes for human consumption, such as for drinking, cooking, washing and bathing purposes.

(B) Water for Washing and Bathing

A supply of cold and hot water shall be provided for all lavatories and shower baths installed. The temperature of the hot water shall be controlled to prevent scalding the employees, or hot and cold water shall be provided through double faucets or valves having a single discharge.

(C) Provision for Drinking Water

A supply of potable and cool drinking water shall be provided and made accessible to employees in working areas; also a supply of drinking water shall be provided in all rooms assigned for lunch purposes. No drinking water facilities shall be provided in toilet rooms and privies.

(D) Method of Dispensing Drinking Water

(1) Drinking Cups:

The use of common drinking cups is prohibited. However, individual paper drinking cups may be used, and

a container shall be provided for the discarded cups. A container shall be provided for unused individual cups to protect them from dirt and soil before use.

(2) Drinking Fountains:

Where a drinking fountain is provided it shall be constructed of impervious material with the water jet set at an angle, protected with a guard so that the water cannot fall back into the point of discharge. The nozzle or water jet shall be located at least three-quarters (¾) of an inch above the edge of the bowl or receptor, and the discharge nozzle shall be guarded so that the mouth or nose of the drinker shall be prevented from coming in contact with the discharge nozzle. The bowl or receptor shall be so proportioned as to catch all water issuing from the nozzle, and there shall be provided a waste pipe sufficiently large to carry off water promptly from the bowl and adequately trapped. The height of the drinking level of the fountain shall be convenient to the average person.

(3) Other Methods of Supplying Drinking Water:

Open containers such as barrels, pails or tanks for drinking water purposes from which water must be dipped, poured, whether fitted with cover or not, shall not be used, except that drinking water for mobile labor gangs such as labor construction crews, building crews and the like, may be supplied with portable pressure drinking fountains equipped with approved water jet as described in paragraph D (2) of this section, and thermos bottles may be used for drinking water for individual use by employees in remote and isolated places such as crane cabs and the like.

(E) Posting of Notices of Unsafe Water

Where water is not potable or fit for human consumption, and is used for industrial processes, fire protection and the like, notices shall be posted at all water outlets where the water might be used for human consumption, stating clearly that such water is unsafe and not to be used for drinking purposes.

(F) Cross Connections

There shall be no physical cross connections of contaminated water systems with potable water systems within the plant property. Valves and check valves shall not be considered a means of separating a contaminated water supply from a potable water supply.

(G) Back Siphonage

No potable water supply system shall be connected to any tank, plumbing or other fixture or device where back siphonage may occur to contaminate the water system except in the following manner:

(1) Lavatories and Sinks:

Where potable water supply system is used for washing and bathing purposes the outlet of the faucets or the water supply to such lavatories and sinks shall not be less than one (1) inch above the rim.

(2) Toilets and Urinals:

No potable water system shall be connected to a toilet or urinal except by means of a back flow preventer provided with the flush valve, or by means of a gravity flush tank where the outlet of the potable water system to such tank or the critical level of a back flow preventer is at least one (1) inch above the overflow and such overflow shall be capable of handling the maximum flow of water without the water level in the tank reaching the supply outlet or critical level.

(3) Other Equipment:

No potable water supply shall be directly connected to a water system used for purposes that might contaminate the potable water system due to back siphonage, such as aspirators, syphons, ejectors, washers, processing tanks and the like. When water is required for other than potable use and the water supply is obtained from a potable water supply system, such requirements shall be taken from a surge tank which is supplied by the potable water system with the potable water supply pipe discharging not less than the equivalent to two (2) nominal supply pipe diameters and never less than six (6) inches above the rim of such surge tank.

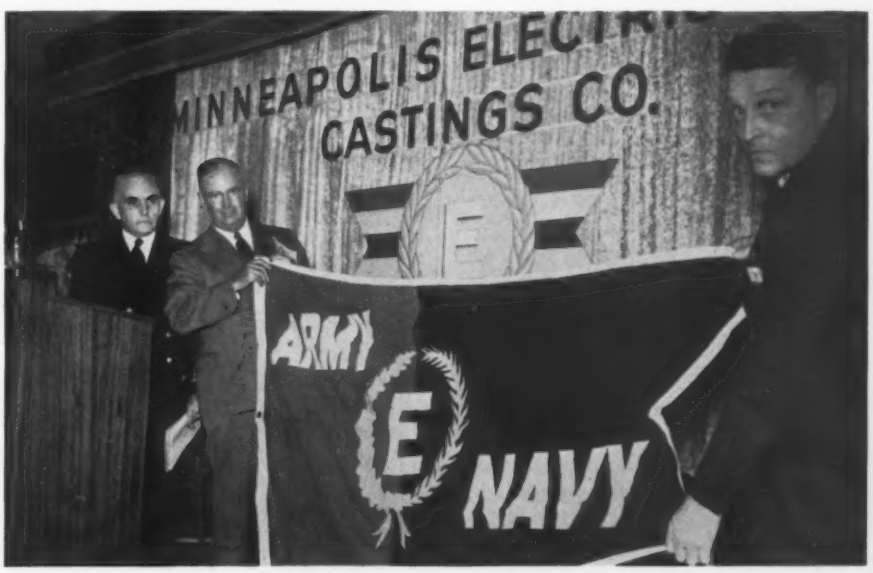
(Part 2 of this code of recommended practices for foundry safety and hygiene will appear in the January issue of "American Foundryman.")

Bulletin on Training Women for War Work

AS THE deeper draft of manpower daily brings more women into war production work, the Apprentice-Training Service, War Manpower Commission, under the guidance of Wm. F. Patterson, Director, has issued the bulletin "Training Women for War Work."

While the training methods suggested for inexperienced women workers do not differ from the recommended procedure for inexperienced male employees, additional practice and explanation is recommended to compensate for the lack of mechanical knowledge and industrial experience prevailing among women employees.

The manual of training procedures, therefore, is based on special studies of job training for women and on reports from Apprentice-Training Service field men on the training practices which are being applied successful by war production plants. Copies of the booklet may be had by writing to Apprentice-Training Service, War Manpower Commission, Washington, D. C.



Another A.F.A. Company member received the Army-Navy "E" award for excellence in war production when Minneapolis Electric Steel Castings Co., Minneapolis, was presented with the coveted flag at plant ceremonies, October 2d. At left, holding banner, is S. V. Wood, president of the company, and a National Director of the Association.

Progress Reported by Committee on High Temp. Sand Properties

MEMBERS of the Foundry Sand Research Subcommittee on Physical Properties of Foundry Sands at Elevated Temperatures met recently in Chicago to discuss progress in the joint investigation now being sponsored by the group. Reports were presented by D. C. Williams, A.F.A. Research Fellow at Cornell University, Ithaca, N. Y., and by H. F. Taylor, Metallurgist at the Naval Research Laboratory, Washington, D. C., the work being carried on at both places.

Interesting information was presented by H. W. Dietert, H. W. Dietert Co., Detroit, on investigations made by his firm. Messrs. Williams and Taylor were highly commended for their activities, the committee being especially gratified at the progress Mr. Williams has made at Cornell in a short period of time.

Appoints Sub-subcommittee

A sub-subcommittee was appointed to investigate and standardize methods of ramming test specimens, and checking and standardizing on tube and stripping post units. Members of this group are: H. W. Dietert, H. F. Taylor, D. C. Williams, and E. Pragoff Jr., Hercules Powder Co., Wilmington, Del. The committee also has designated a method of recording elevated temperature tests.

Method of Reporting Data

Hereafter, to make full information available on high temperature tests in reporting data, the data will be recorded in the following order: First hot strength in psi, followed by a hyphen; next, test temperature, followed by hyphen; next, soaking time in minutes, followed by a hyphen; and last, the letters D or G, indicating a dry or green specimen. For example, on a green sand specimen of 100 psi hot strength, tested at 2500°F. after a soaking period of three minutes, data would be recorded thus: 100-2500-3-G.

The committee also decided to appoint sub-committees to work in cooperation with the present subcommittee in studying elevated temperature properties of iron and non-ferrous sands. Personnel for this activity will be announced later.

Papers Being Sought

The subcommittee is seeking short papers on the elevated temperature properties of foundry sands for publication in *American Foundryman*, for the purpose of accumulating and disseminating information on such properties and to stimulate interest in the work. Membership of the Subcommittee on Physical Properties of Foundry Sands at Elevated Temperature is as follows:

Chairman, W. Finster, American Chain & Cable Co., Reading, Pa.; *Vice-Chairman*, H. F. Taylor, Naval Research Laboratory; *Secretary*, D. C. Williams, Cornell University; C. W. Briggs, Steel Founders' Society of America, Cleveland; H. W. Dietert, H. W. Dietert Co., Detroit; R. A. Gezelius, General Steel Castings Corp., Eddystone, Pa.; J. W. Juppenlatz, Lebanon Steel Foundry, Lebanon, Pa.; J. R. Moynihan, Cornell University; D. L. Parker, General Electric Co., Everett, Mass.; E. Pragoff, Jr., Hercules Powder Co.; J. A. Rassenfoss, American Steel Foundries, E. Chicago, Ind.; W. G. Reichert, W. G. Reichert Engineering Co., Newark, N. J.; F. B. Riggan, Key Co., East St. Louis, Ill.; E. E. Woodliff, Foundry Sand Service Engineering Co., Detroit.

Continue Apprentice Contests for 1944

THE A.F.A. Apprentice Training Committee, through its contest subcommittee, has announced that it will continue for 1944 its annual molding and pattern competitions.

These annual contests have, since they were first originated in 1924, attracted a great deal of attention and promoted interest in organized foundry training. While it is realized by the committee that training programs have been disrupted by war conditions to some extent, it has decided that the contests should be held as an annual project.

The Contest Committee under the chairmanship of C. W. Wade, Foundry Division, Caterpillar Tractor Co., Peoria, Ill., is comprised of the following members:

F. C. Cech, Cleveland Trade School, Cleveland.

H. L. Charlson, American Steel Foundries, East Chicago, Ind.

Jas. G. Goldie, Cleveland Trade School, Cleveland.

J. Morgan Johnson, Tri-City Manufacturers' Assn., Moline, Ill.

E. P. Meyer, Chain Belt Co., Milwaukee, Wis.

G. A. Zabel, Universal Foundry Co., Oshkosh, Wis.

This committee has developed regulations governing the contests and provided for the holding of local elimination competitions in foundries and pattern shops throughout the country. Local competitions can be sponsored either by plant officials or by organized foundry groups or chapters. The A.F.A. committee provides patterns for the molding and blue prints for the pattern sections.

Entries from the local competitions will be forwarded to National Contest, held during the Third Foundry War Production Congress, Buffalo, April 25-28. Prizes of $30, $20 and $10 for winners of first, second and third places respectively, have been authorized in each of the four sections, (1) Steel Molding, (2) Gray Iron Molding, (3) Non-Ferrous Molding, (4) Patternmaking. Funds for the prizes are being furnished through the A.F.A. Board of Awards.

Those interested may secure information on the contest, together with copies of the regulations, by writing to the A.F.A. Apprentice Contest Committee, 222 W. Adams Street, Chicago.

An all-time safety record was established during the first six months of 1943, at the Caterpillar Tractor Co., Peoria, Ill. H. S. Simpson, safety engineer, announced that more than 17,000 employees were able to maintain a frequency rate of only 4.36 lost--time accident cases per million man hours of work.

The elements of insurance as they affect foundrymen desirous of obtaining pattern protection are discussed in this paper which was originally presented at the A.F.A. 2nd War Production Foundry Congress, held in St. Louis last April. Aspects of fire protection, essential today, also are developed, particularly from the pattern standpoint.

Insurance Protection for the Pattern Shop Operator and His Customer

By W. C. Anderson
Missouri Inspection Bureau, St. Louis

PRESERVATION of patterns and pattern records is at the heart of foundry operations. Foundrymen should approach the problem appreciating the fact that peak production, especially when it involves employment of inexperienced help, adds materially to fire hazard potentials. Under abnormal operating conditions fires cannot be prevented by ordinary fire prevention precautions. There must rather be constant alertness, proportional to the increased activity.

All foundries should have a well organized fire brigade, fully trained and ready to cope with any emergency, as well as alert to observe conditions which might cause fire or which might aggravate the damage, should a fire occur. The fire brigade is of unusual importance at this time.

One of the first principles of fire protection — segregation — should be employed in safeguarding patterns from fire. The pattern shop should be segregated from other plant operations, and pattern storage should be segregated from the pattern shop, from the foundry and from all other portions of the plant.

This segregation should be in a separate building, or in a pattern storage vault with standard fire cut-offs from the remainder of the property. The storage building or vault should be protected with automatic sprinklers, and other fire fighting equipment should be provided to cope with incipient fires.

From all facts available, the serious losses which have been experienced in war industries have not been traceable to sabotage or to other subversive influences, but have been traceable to conditions inherent in the business — conditions l e n d i n g themselves to sound and practical, common sense fire-prevention practices. In other words, these fires have been preventable.

Three Types of Coverage

Insurance coverage on patterns naturally subdivides itself under three headings: (1) Insurance protection on a foundry's own patterns, on its own premises, (2) protection on customers' patterns while in the job shop, and (3)protection on a foundry's patterns while on premises of others or while being transported.

As to the first type of insurance, this must be worked out as an individual problem depending upon the arrangement of the plant and the method of operation. In general, because patterns move around the plant usually from one building to another—at times in the foundry building, at times in the pattern storage building or vault, and at times in the pattern shop—it is generally desirable to write the patterns under a blanket item, that is, covering any part of the plant, under one item. This, under most jurisdictions, calls for the application of rules for blanket coverage, which require that the foundry carry at least 90 per cent insurance to value. In some cases the entire plant may be written under a single item, blanket policy, including patterns with buildings, machinery and stock, with an average rate applying over all.

As to patterns of customers on the foundry premises, there can be considerable diversity regarding responsibility in event of loss. It is probable that many foundries include a stipulation in contracts with their customers to the effect that the customer is to provide his own insurance protection on the patterns. The advantage of such an arrangement is that the responsibility of keeping up the value of such patterns lies with the customer rather than the foundry.

In fact, where a large volume of patterns is involved, unless the customer furnishes a statement as to the value of such patterns, it might be found, in event of a loss, that the value of the patterns has disturbed the foundry's insurance contract from the standpoint of compliance with the Coinsurance Clause or Reduced Rate Contribution Clause.

Foundry-Owned Patterns

As to coverage on foundry-owned patterns while on premises of others or while being transported, the reverse of the preceding situation exists. The foundry will either have a contract written in its own name, covering such patterns, or the foundry to which the patterns are sent will have a contract agreeing to indemnify the owner in case of injury or destruction of the patterns involved.

With patterns, as with other items subject to insurance coverage, a foundry's first problem is to determine its responsibility and what contingencies might arise that would cause injury to or destruction of the item to be insured and then to determine how coverage against those perils may be secured.

If a foundry works only with

its own patterns, on its own premises, and has no patterns of others, the problem is a relatively simple one. The insurance contract or policy covering on such patterns will be a separate contract from that covering patterns being transported or on premises of others. The first coverage is written under what is generally referred to as the property damage policy which applies only at a specifically named location.

The other coverage—i.e., covering off the premises—is generally written under what is termed floater coverage or an inland marine contract. This inland marine contract covers, in a general way, the same perils as are insured against under the straight property damage policy covering in one's own plant, except that certain transportation perils are also covered.

Extended Damage Coverage

The primary coverage under a property damage policy is against damage or destruction by fire. In recent years there has been a progressive tendency to expand the coverages given under property damage contracts. This has been done by making available in practically all jurisdictions an Exended Coverage Endorsement.

This is an endorsement to be attached to the primary fire contract, extending the coverage to include the perils of windstorm, cyclone, tornado and hail, explosion, riot, riot attending a strike, civil commotion, aircraft, smoke and vehicles.

This endorsement is drawn in very simple terms outlining these coverages, and very little appears in the endorsement as to exceptions or modifications. Exceptions consist principally of certain conditions as to coverage on glass; an exclusion of damage done by "operation of armed forces while engaged in hostilities;" an exclusion of damage by explosion "originating within steam boilers, pipes, flywheels, engines and machinery connected therewith and operated thereby."

Such endorsement has become very popular, and foundries probably will find it uniformly possible to secure these coverages by the use of the endorsement at a considerable saving over the cost of separate contracts covering specifically on these perils or minor groupings of them. At this time it has also become quite common to add to the fire contract with the Extended Coverage Endorsement attached, a Vandalism and Malicious Mischief Endorsement, for an additional consideration.

Consequential Loss Coverage

Insurance against all of these perils can also be secured under contracts granting indemnity for consequential losses, as well as for direct property damage losses. By consequential losses is meant losses growing out of the direct damage loss, being an unavoidable consequence or result of the direct loss.

The principal class coming under the heading of consequential losses is Use and Occupancy, or what some term Business Interruption insurance. This type of contract indemnifies for the loss of earnings during the time production is totally or partially interrupted by one of the perils insured against.

The measure of indemnity is loss of profits thereby prevented, plus "such fixed charges and expenses as must necessarily continue during the total or partial suspension of business to the extent to which they would have been earned had no fire (or other contingency insured against) occurred." Included in this are salaries of officers and important employees. Ordinary payroll can also be covered, but generally this is under a separate item and at a separate rate.

Difficulty in Replacement

Use and Occupancy or Business Interruption insurance has received an unusual amount of attention recently by those insured because of difficulty in replacing buildings, machinery and equipment or raw stock damaged by fire or other contingency. The coverage is also being scrutinized very carefully by underwriters, as loss potentialities have been greatly exaggerated by difficulties in replacement, causing unusual delays in the period of interruption and in numerous cases making it impossible for concerns to resume operation.

The contract as originally drawn for Use and Occupancy or Business Interruption coverage did not contemplate conditions now being encountered under various priorities restrictions and regulations. To attune the contract more nearly to the original intent under present unanticipated conditions, an endorsement has been prepared which is in use in many states, known as the "Priorities Endorsement." The endorsement provides that coverage under the contract will not extend to include periods of time beyond a normal interruption which are the result of priorities restrictions and regulations arising out of present war conditions.

Where automatic sprinklers protect the pattern shop, pattern storage building or vault, or other portions of the plant, it would be considered advisable to take out a Sprinkler Leakage policy covering against damage from water released from the system by accidental or mechanical causes. Normally, the percentage of loss or damage from sprinkler leakage is small compared to the total value of the property, and for that reason a much smaller amount of Sprinkler Leakage insurance is written than other damage coverages.

War Damage Insurance

Recognizing this, substantial credit from the gross Sprinkler Leakage rate is allowed for the attachment of the 10 per cent Coinsurance Clause. Experience indicates that seldom is higher than 25 per cent coinsurance used in the writing of Sprinkler Leakage insurance.

Another type of insurance which should be mentioned, which many foundries now have, is war damage insurance. This insurance provides protection against direct damage arising out of the war. The liability is assumed by the War Damage Corporation, with private insurance carriers participating in the liability to a fixed percentage. The coverage is available

through existing agents or carriers.

Another type which probably should be mentioned is burglary protection. While it might be contended that this peril is diminished under 24-hour operation, such as many plants are engaged in, the hazard does merit consideration.

Having determined a company's need and what type of contract or contracts are to be written, the next problem is the matter of the amount of insurance to be written. This gets into the subject of values and must be analyzed very carefully because when a plant names the valuation it is naming the maximum recovery that can be had in the event of loss.

Coinsurance Clause

Most contracts covering on patterns contain a Coinsurance Clause or other insurance to value cause and if, in determining the amount of insurance to be carried, an amount is stated appreciably below the actual value of the patterns, in the event of a partial loss the plant may not recover even to the extent of the full amount of the damage. In other words, if the contract stipulates that a firm is to carry 90 per cent insurance to value, by failing to do so it becomes a coinsuror proportionate to the deficiency below that value. For example, if the Coinsurance Clause would require $10,000 and only $5,000 insurance is written, then in the event of a $1,000 loss involving a portion of a foundry's patterns, the foundry would recover only $500.

Individual Job Insurance

Patterns are frequently made for a specific job, the patterns having no real value after that contract is fulfilled.

If it is definitely known that the patterns will not be used again, the foundry may elect to destroy or otherwise eliminate the pattern, thus conclusively avoiding any argument as to its value.

However, if it is not definitely known that there will be no further use for the pattern, the pattern may be preserved and simply placed in storage for a certain period of time and possibly for several years. Such a pattern has very little value and possibly will be written off immediately from the standpoint of book values.

Other patterns are what would be termed active patterns and will be used to manufacture some standard product and as long as there is a sale for that product the pattern will continue to have value. These patterns generally are worth about what it costs to reproduce them.

Discusses Plans for Program at Buffalo

PLANS for the technical program of the 1944 Foundry Congress were thoroughly discussed at a meeting of the Technical Activities Correlation Committee, October 19. The committee composed of present and past A.F.A. Directors includes: Chairman, Max Kuniansky, Lynchburg Foundry Co., Lynchburg, Va.; R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J.; H. Bornstein, Deere & Co., Moline, Ill.; F. J. Walls, International Nickel Co., Detroit, and W. L. Woody, National Malleable & Steel Castings Co., Cleveland.

The following division chairmen serve as conferees: T. N. Armstrong, International Nickel Co., New York; A. M. Fulton, Northern Malleable Iron Co., St. Paul; R. G. McElwee, Vanadium Corp. of America, Detroit; Vaughan Reid, City Pattern Works, Detroit; H. Ries, Ithaca, N. Y.; W. Romanoff, H. Kramer & Co., Chicago; H. M. St. John, Crane Co., Chicago; F. G. Sefing, International Nickel Co., New York, and N. E. Woldman, Bendix Aviation Corp., Bendix, N. J.

Secretary R. E. Kennedy opened the meeting by reporting on committee activity for the coming year and outlined plans for the 1944 technical program. He emphasized especially the work of the new committees being appointed. Considerable interest was shown in the prospective war production session, and the committee suggested methods of utilizing them to greatest advantage.

Mr. Allen reported progress of the Committee on High Temperature Properties of Cast Iron of the Gray Iron Division, which is acting in an advisory capacity to the War Metallurgy Committee. A prospective symposium on centrifugal castings was discussed at length and suggestions offered on the various methods which should be included.

Taking part in the recent ceremony when the National Engineering Co., Chicago, was honored with its "E" award were (front row, left to right): Barney Castor and H. S. Simpson, National Engineering Company's oldest employee and Chairman of the Board respectively; Dr. Preston Bradley, Master of Ceremonies; R. P. Waschau, secretary; Bruce L. Simpson, president; Col. C. J. Otjen, District Commander, Lt. Cmdr. L. B. Knight, USNR; Chester Coyner, employees' representative. Second row, left to right: Otto Drolshagen, Elsie Bruechtel, Kenneth Simonsen, A. C. Christensen, all employees.

New Association Members

Twenty-three Chapter Membership Committees "rang the bell" during the October 16-November 15 period to bring 153 new members into A.F.A. activities. This included the 18 members who are serving as a nucleus for the new Texas chapter. Leading the field was the Eastern Canada and Newfoundland group, established in 1942, which is growing by leaps and bounds.

(October 16 to November 15, 1943)

SUSTAINING

***Houston Foundry & Machine Co., Houston, Texas (W. A. Raymond, Gen. Mgr.)**

CONVERSIONS

Sustaining from Company

***Hughes Tool Co., Houston, Texas (W. W. Hampton, Plant Mgr.)**

***Standard Brass Works, Milwaukee, Wis. (Roy M. Jacobs, Pres.)**

Company from Personal

***Foundry Specialties Co., Huntington Park, Calif. (Walter F. Haggman, Mgr.)**

Birmingham Chapter

R. H. Mattison, American Casting Co., Birmingham, Ala.

Central Indiana Chapter

Walter Grunden, Jr., Lab. Tech., Perfect Circle Co., New Castle, Ind.

Henry E. Trimble, Fdry. Foreman, U. S. Naval Ammunition Depot, Crane, Ind.

Central New York Chapter

Bruno Benassi, Core Room Foreman, Goulds Pumps, Inc., Seneca Falls, N. Y.

Chesapeake Chapter

F. F. Espenschied, Distr. Repr., American Air Filter Co., Washington, D. C.

Col. H.C.T. Han, China Defense Supplies, Inc., Washington, D. C.

William F. Loughrey, Molder, Washington Navy Yard, Washington, D. C.

R. W. Ramsey, Prod. Mgr., Gibson & Kirk Co., Baltimore, Md.

***York Safe and Lock Co., York, Pa. (C. W. Schaberg, Fdry. Mgr.)**

Chicago Chapter

***Arrow Pattern & Foundry Co. (Not Inc.), Chicago (Fred Erickson, Owner-Mgr.)**

Charles Douglas Kayser, Jr., Asst. to Works Mgr., American Steel Foundries, East Chicago, Ind.

Richard E. Kerr, Met., Pettibone-Mulliken Corp., Chicago

Ernest G. Leverenz, Chief Insp., American Steel Foundries, East Chicago, Ind.

Leo M. Maliszewski, Supv., Sand Control, American Steel Foundries, East Chicago, Ind.

Lawrence J. Polachek, Sales & Service Repr., Wellman Products Co., Chicago

Louis H. Streb, Engr., Dodge Chicago Plant, Chrysler Corp., Chicago

Harry C. Swanson, Supt., Arrow Pattern & Foundry Co. (Not Inc.), Chicago

Ralph W. Swanson, Apprentice, Swanson Pattern & Model Works, East Chicago, Ind.

Edwin A. Swensson, Draftsman, Fdry. Div., National Engineering Co., Chicago

Cincinnati District Chapter

Albert Beerman, Core Room Foreman, Schaible Foundry & Brass Works, Cincinnati

A. I. Mallin, Radiographist, Wright Aeronautical Corp., Cincinnati

James E. McSurely, Foreman, Cincinnati Milling Machine Co., Cincinnati

John Scott, Asst. Fdry. Supt., Schaible Foundry & Brass Works, Cincinnati

Austen J. Smith, Met., The Lunkenheimer Co., Cincinnati

Detroit Chapter

Jess Toth, Secy., Harry W. Dietert Co., Detroit

Donald J. Unger, Foreman, Federal-Mogul Corp., Detroit

James O. Vadeboncoeur, Met., Pontiac Motor Div., General Motors Corp., Pontiac

Frederick James Walls, Asst. Met., Wilson Foundry and Machine Co., Pontiac

Eastern Canada and Newfoundland Chapter

Kurt Baier, Foreman, Clean. Shop, Joliette Steel, Ltd., Joliette, Que.

William F. Baker, Pattern Shop Foreman, Joliette Steel, Ltd., Joliette, Que.

***Beaupre & Munroe Foundry, Ltd., Montreal, Que. (Andre Laramee, Mgr.)**

J. E. Bergeron, Mgr., Shawinigan Foundries, Ltd., Shawinigan Falls, Que.

Dolor Biron, Core Room Foreman, Dominion Engineering Works, Ltd., Lachine, Que.

Eleazer Brazeau, Supt., Poliette Steel, Ltd., Joliette

Charles Chaillot, Foreman, Industrial Pattern & Foundry Works, Montreal, Que.

George Couture, Foreman, Beaupre & Munroe Foundry, Ltd., Montreal, Que.

***Fonderie Belanger, Ltd., Montreal, Que. (Ernest Lamaree, Owner)**

A. Hammond, Safety Engr., Warden King, Ltd., Montreal, Que.

Arthur Mathieu, Patternmaker, Western Pattern Works, Montreal, Que.

J. A. N. Munroe, Supt., Beaupre & Munroe Foundry, Ltd., Montreal, Que.

Lucien Noel, Mgr., Fonderie Belanger, Ltd., Montreal

Graham L. Pelley, Foreman, Crane, Ltd., Montreal

Fernard Plouffe, Foreman Molder, Joliette Steel, Ltd., Joliette, Que.

***The James Robertson Co., Ltd., Montreal, Que. (N. Mannard, Factory Supt.)**

G. Sevigny, Prop. & Mgr., La Fonderie Canadienne, St. Johns, Que.

J. S. Stavert, Mgr., Hall & Stavert, Ltd., Charlottetown, P. E. I.

Joseph Strachan, Patternmaker, Western Pattern Works, Montreal, Que.

I. Stuppel, Hull Iron & Steel Foundries, Ltd., Hull, Que.

Joseph Thorneycroft, Ship Overseer, Department of Naval Construction, Ottawa, Ont.

N. L. Turner, Hull Iron & Steel Foundries, Ltd., Hull, Que.

Metropolitan Chapter

Clifford E. Burris, Lab. Mgr., American Brake Shoe Co., Mahwah, N. J.

Edward M. Kaulbach, Met. Asst., American Brake Shoe Co., Mahwah, N. J.

Norman D. Maples, Sales and Service Repr., Wellman Products Co., Laurelton, N. Y.

James P. Robinson, Met. Asst., American Brake Shoe Co., Mahwah, N. J.

***Star Electric Motor Co., Farrand Foundry Div., Bloomfield, N. J. (George D. Smith, Jr., Fdry. Supt.)**

Michiana Chapter

James Boland, Lab. Supv., Oliver Farm Equipment Co., South Bend, Ind.

E. J. Buttens, Foreman, Oliver Farm Equipment Co., South Bend, Ind.

John M. Fay, Jr., Secy-Treas., Fay Foundry Co., St. Joseph, Mich.

*Company Members.

Thomas F. Hans, Foreman, Oliver Farm Equipment Co., South Bend, Ind.

Northeastern Ohio Chapter

Carmen L. Adovasio, Met., Ohio Brass Co., Mansfield Ohio
Albert F. Fath, Jr., Sales Repr., Wellman Products Co., Cleveland
Elmer L. Kiel, Sales and Service Repr., Wellman Products Co., Cleveland
Burdette F. Smith, Foreman, Fulton Foundry & Machine Co., Cleveland
Louis J. Voyer, District Mgr., Peninsular Grinding Wheel Co., Cleveland

Northern California Chapter

George P. Bloxham, Vice Pres., Wilson & Geo. Meyer & Co., San Francisco
Jack D. Cannon, Repr., Ohio Ferro-Alloys Corp., San Francisco
H. S. Landon, Mgr., Ohio Ferro-Alloys Corp., San Francisco
Wilfred Souza Valente, Coremaker, Phoenix Iron Works, Oakland
John J. Wall, District Mgr., International Forwarding Co., San Francisco
*Wilson & Geo. Meyer & Co., San Francisco (Lewis N. West, Treas.)

Northern Illinois-Southern Wisconsin Chapter

Stephen & Wolff, Inc., Rockford, Ill. (Joseph L. Mazzuchelli, Secy.)

Ontario Chapter

C. O. Flowers, Supt., Canada Iron Foundries, Ltd., Hamilton, Ont.
David Muir, Fdry. Engr., Frederic B. Stevens, Inc., of Canada, Ltd., Toronto, Ont.
*Vancouver Engineering Works, Ltd., Vancouver, B. C. (E. Redpath, Vice Pres. and Managing Dir.)

Philadelphia Chapter

Charles Wm. Birkhead, Assoc. Principal Insp., Naval Materials, U. S. Navy, Philadelphia
Charles W. Hervey, Owner, Lewellen & Hervey, Philadelphia
*Rolle Casting Co., Inc., Philadelphia (Richard E. Schmidt, Prop.)
William M. Sheehan, General Steel Castings Corp., Eddystone, Pa.
Douglas J. Taylor, Field Engr. (Ceramics), Bethlehem Steel Co., Bethlehem, Pa.
Samuel Francis Thomas, Molder, Bethlehem Steel Co., Bethlehem, Pa.

Quad-City Chapter

Mervin H. Horton, Met., John Deere Harvester Works, East Moline, Ill.
Chris Jensen, Salesman, Cleveland Flux Co., Moline
Albert J. Schaefer, Foreman, Frank Foundries Corp., Moline, Ill.

St. Louis District Chapter

John Atkins, Supt. C. & F. Dept., General Steel Castings Corp., Madison, Ill.
Fred Dodson, Asst. Supt., Wheel Foundry, Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill.
Charles Kite, Supt., Grey Iron Foundry, Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill.
Procter Phillips, Cupola Foreman, Wheel Foundry, Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill.
George Scrivner, Supt., Wheel Foundry, Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill.

Southern California Chapter

*Bardco Manufacturing & Sales Co., Los Angeles (Clarence Anderson, Fdry. Supt.)
Edward J. Barnes, Chemist, Foundry Specialties Co., Huntington Park, Calif.
Leonard L. Greenfield, Joseph Dixon Crucible Co., Los Angeles
Roy Juhnke, Asst. Fdry. Foreman, Bardco Manufacturing & Sales Co., Los Angeles
Donald F. Kersey, Fdry. Foreman, Cannon Manufacturing Corp., Los Angeles
Leland D. Mellon, Salesman, Balfour, Guthrie & Co., Ltd., Los Angeles
*Price-Pfister Manufacturing Co., Los Angeles (Donald E. Harper, Fdry. Foreman)
*Snyder Engineering Corp., Los Angeles (J. Alden Lane, Sales Mgr.)

Texas Chapter

*Able Supply Co., Inc., Houston (F. G. Huber, Vice Pres.-Gen. Mgr.)
P. B. Croom, Prod. Engr., Cameron Iron Works, Inc., Houston
Wilson Dedmon, Foreman, Molding Dept., Texas Electric Steel Casting Co., Houston
*Farmer's Marine Copper Works, Galveston (W. T. Evans, Fdry. Supt.)
Wm. Murray Ferguson, Works Mgr., Texas Electric Steel Casting Co., Houston
*Hartwell Iron Works, Inc., Houston (Arthur E. Hartwell, Pres.)
W. E. Hochmuth, Supt., Houston Foundry & Machine Co., Houston
*Houston Foundry-Machine Co., Houston, Texas (W. A. Raymond, Gen. Mgr.)
E. O. Naquin, Acting Supt., Oil City Brass Works, Beaumont, Texas
*Nibco of Texas, Inc., Nacogdoches, Texas (Lee Martin)
*Oil City Brass Works, Beaumont, Texas (Geo. E. Bryant, Jr., Vice Pres.)
Karl W. Sieling, Repr., Harbison-Walker Refractories Co., Houston
Stonewall J. Smith, Salesman, Federated Metals Div., American Smelting & Refining Co., Farmersville, Texas
Bruce J. Squires, Supt., Hartwell Iron Works, Houston
L. O. Sturkie, Fdry. Engr., Hughes Tool Co., Houston
T. D. Swindler, Chief Melter, Hughes Tool Corp., Houston
Chas. K. Tharp, Met., Texas Electric Steel Casting Co., Houston
Harry L. Wren, Dept. Mgr., Barada & Page, Inc., Houston

Twin City Chapter

Raymond J. Janicke, Foreman, Core Room, Northern Ordnance Corp., Fridely, Minn.

Western Michigan Chapter

Iver N. Hermanson, Melting Supt., West Michigan Steel Foundry Co., Muskegon, Mich.
Oscar V. Murphy, Chief Engr., Newaygo Engineering Co., Newaygo, Mich.
Edward G. Peterson, Engr., Newaygo Engineering Co., Newaygo, Mich.

Western New York Chapter

Frank F. Bonnevier, Works Mgr., Bison Castings, Inc., Kenmore, N. Y.
George W. Cassady, Engr., Safety Grinding Wheel & Machine Co., Erie, Pa.
Joseph M. Clifford, Met., Bison Castings, Inc., Buffalo
C. T. Coffman, Cleaning Room Supt., Bison Castings, Inc., Buffalo
Fred Fisher, Gen. Fdry. Foreman, Bison Castings, Inc., Buffalo.
J. Holland Gunterman, Elec. Furn. Operator, Worthington Pump & Machinery Corp., Buffalo
Bertrand A. Holt, Chemist, American Radiator & Standard Sanitary Corp., Buffalo
Albert Kochli, Supervision, Symington-Gould Corp., Depew, N. Y.
Mitchel F. Mazuca, Coremaker, Worthington Pump & Machinery Corp., Buffalo
William McKee, Gen. Supt., Plant C, Symington-Gould Corp., Rochester, N. Y.
A. L. Miller, Sales Repr., Beardsley & Piper Co., Williamsville, N. Y.
Anthony Nowak, Bench Molding Foreman, Worthington Pump & Machinery Corp., Buffalo
David Redinbaugh, Production, Bison Castings, Inc., Buffalo
Louis Rodland, Molding Foreman, Worthington Pump & Machinery Corp., Buffalo
C. B. Town, Sales Repr., Harbison-Walker Refractories Co., Buffalo
Herbert D. Warren, Molder, Worthington Pump & Machinery Corp., Buffalo
Ross T. Wesson, Expeditor, Dunkirk Foundries, Inc., Dunkirk, N. Y.

*K. R. Wilson Foundry Co., Buffalo (K. R. Wilson, Owner)

Wisconsin Chapter

Roman Adrian, Core Room Foreman, Burlington Brass Works, Burlington, Wis.
Theo. Albrighton, Standard Brass Works, Milwaukee
William Berlin, Supv., Kohler Co., Kohler, Wis.
Clyde Case, Time Study Foreman, Allis Chalmers Mfg. Co., West Allis, Wis.
Wm. F. Haskins, Melter, Pelton Steel Casting Co., Milwaukee
Albert Huebner, Pattern Shop Foreman, Allis Chalmers Mfg. Co., West Allis, Wis.
Stanley G. Lipinski, Maintenance Supt., Pelton Steel Casting Co., Milwaukee
Walter J. Parlow, Personnel Mgr., Pelton Steel Casting Co., Milwaukee
Chas. Payleitner, Fdry. Foreman, Burlington Brass Works, Burlington, Wis.
Edw. W. Potter, Plant Engr., International Harvester Co., Milwaukee
William Pruett, Maintenance Foreman, International Harvester Co., Milwaukee
Lewis G. Shaw, Prod. Mgr., Pelton Steel Casting Co., Milwaukee
Charles E. Stull, Asst. Supt., Pelton Steel Casting Co., Milwaukee
John A. Szymczak, Foreman, Pelton Steel Casting Co., Milwaukee

Outside of Chapter

*Ascot Iron Foundry, Ltd., Mascot, Sydney, Australia (R. McFarlane)
*Webster & Lumsden, Alexandria, Sydney, Australia (E. Webster)
Ralph Wilson, F. H. Lloyd & Co., Ltd., Near Wednesbury, Staffs, England

Washburne School Organizes Second Junior Foundry Group

STUDENTS in foundry practice at Washburne Trade School, Chicago, on October 16 organized a second Junior Foundrymen of America group with membership of 37. Organization of the group comes as the result of interest stimulated by Roy Schroeder, instructor in foundry practice at that institution.

The Washburne J.F.A. group will be assisted by the Apprentice and Junior Foundrymen Committee of the Chicago Chapter. This committee, under the chairmanship of B. L. Simpson, National Engineering Co., Chicago, will act in an advisory capacity.

The following officers of the group, for which a board of directors soon will be appointed, have been elected: President, Joseph Armato; Vice President, Joseph Lucca; Secretary, Donald Longanecker; Treasurer, John Mihelich; Sergeant-at-Arms, Edward Krol.

To keep the new group informed of foundry progress, and to provide them with a guide for a scientific approach to foundry practice, the Chicago Chapter of A.F.A. will support two memberships in the new J.F.A. group. The memberships will be held in the name of the President and Secretary, and J.F.A. members are encouraged to attend the meetings of the Chicago Chapter to become acquainted and benefit from the programs.

Membership of the Chicago Chapter Apprentice and Junior Foundrymen Committee, which sponsors the new group, is as follows: *Chairman,* B. L. Simpson, National Engineering Co., D. G. Anderson, Western Electric Co., C. K. Evans and W. J. Hebard, Continental Roll and Steel Foundry Co.; C. G. Mate, Greenlee Foundry Co.; J. J. Nagyar, Calumet Steel Castings Co.; R. P. Osko, Claude B. Schneible Co.; R. W. Schroeder, Washburne Trade School; F. F. Shoemaker, Armour Research Foundation; J. S. Turek, Crane Technical High School, and C. F. Walton, Associated Manufacturers of Chilled Car Wheels.

Barnes Mfg. Co. Earns "E" Award

AMONG the A.F.A. members to receive recent "E" awards was the Barnes Manufacturing Co., Mansfield, Ohio. Public recognition for excellence in war production work was made on November 19 at Mansfield, when a fitting ceremony was held.

Chicago Museum to Have Xmas Program

AN INTERESTING series of Christmas programs has been announced by Chicago's Museum of Science and Industry for December 10-23, featuring the Chirstmas customs of the United Nations. Each day a Yule tree will be on display, decorated in accordance with the traditions of the Allied nations, and the entire group will be exhibited during the holiday week. A special program for each day of the period is being prepared with the assistance of local nationality groups, and on December 23 all groups will participate in United States Day.

The Museum holds special interest for A.F.A. members, since the popular foundry exhibit there was sponsored by the Chicago Chapter of the Association. For the past year, the exhibit has been engaged in actual war production work, in addition to its periodic public showings of the casting of metals.

Moynihan Now Heads Nomenclature Group

PROF. J. R. MOYNIHAN, Head, Materials Testing Laboratories, Cornell University, Ithaca, N. Y., has been appointed chairman of the Foundry Sand Research Subcommittee on Nomenclature. Prof. Moynihan also is supervising the high temperature testing work being carried on at Cornell under the direction of the Subcommittee on Physical Properties of Foundry Sands at Elevated Temperatures.

Appointment of Prof. Moynihan as chairman brings to the committee a man well qualified for the nomenclature work. His subcommittee is responsible for standardizing definitions and promulgating new ones relating to the properties of and testing procedures for foundry sands. He is a logical successor to the late Prof. A. C. Davis, who served initially as chairman of the subcommittee and who laid the foundation for its future work.

CHAPTER ACTIVITIES

News

See page 27 for list of Chapter representatives whose reports of local activities appear in this issue.

Philadelphia Honors President Wilson At National Officers Night

OVER 200 members and guests of the Philadelphia Chapter turned out November 12 for "National Officers Night," to greet A.F.A. President Lee Wilson, Reading Steel Casting Div. of American Chain & Cable Co., Reading, Pa. Other past and present national officers at the meeting, held at the Engineers' Club, included Director Harry Reitinger, U. S. Pipe & Foundry Co., Burlington, N. J.; Secretary R. E. Kennedy, Chicago, and Dr. G. H. Clamer, Ajax Metal Co., Past President and A.F.A. medalist in 1933.

Chapter Chairman B. H. Bartells, University of Pennsylvania, presided and introduced President Wilson, who paid tribute to Philadelphia as the city where A.F.A. was organized in 1896, and to the Philadelphia Foundrymen's Association, predecessor of the local Chapter, one of the two groups that sponsored the 1896 organization meeting. He pointed out that W. B. Coleman, W. B. Coleman & Co., served as the Chapter's first chairman and since then has served continuously as the Secretary-Treasurer of the group.

Technical speaker of the evening was Joe A. Gitzen, Delta Oil Products Co., Milwaukee, who was introduced by Bert Troy, Dodge Steel Co., Chapter Technical Chairman. Mr. Gitzen discussed the classification, application and composition of core binders, and described how core and mold washes are used for various classes of castings.

Recent investigations and findings on the use of iron oxides and wood flour were brought out in his talk. Mr. Gitzen was especially interested in showing the possibilities of a better understanding of the application of chemical and metallurgical principles to foundry practice.

(Photos courtesy S. D. Russell, Phoenix Iron Works)

Chapter Chairman Harry C. Bossi and Chapter Secretary Geo. L. Kennard were on hand to make the Northern California Golf Outing a huge success.

Emile Pragoff Speaks to New England Foundrymen

By Merton A. Hosmer

WITH A. W. Calder, New England Butt Co., Providence, R. I., President of the New England Foundrymen's Association, presiding, 104 members and guests assembled at the Engineer's Club, Boston, October 13, to hear Emile Pragoff, Jr., Hercules Powder Co., Wilmington, Del., speak on "Core Making—Theory and Practice."

Illustrating his talk with numerous practical slides on the theory of obtaining a good core sand for various types of work, Mr. Pragoff explained that the first consideration in core baking is to remove the moisture from the core. After that a wide range in baking characteristics is found, depending upon the type of binder used.

He further stated that binders vary in the amount of gas evolved from the core, and that

Walter F. Haggman, Chapter President, presents the Southern California Chapter trophy to the Aluminum Co. of America team. The runner-up in the keenly contested summer bowling series was the Warman Steel Foundry team.

it is always advisable to consult the supplier regarding the gas content inherent with each product.

When two binders are used, Mr. Pragoff said, one often helps the other, and the resulting properties may excel those obtained when either material is used alone. Although strength tests carried out in the laboratory are a necessary guide in making up core sand mixes, it is also necessary to study the results in the foundry in order to prove the effect of various binders on the cores produced.

Southern California Sponsors Bowling

By Robt. R. Haley

IT WAS difficult to start the first summer bowling league in the Southern California Chapter's district, but once the group was organized and a regular schedule established interest mounted, and before long competition became so keen that it was possible to form a second league.

League No. 1 included representatives from the following companies: Advance Aluminum & Brass Co., Aluminum Co. of America, Compton Metals Co., Compton Pattern Co., Foundry Specialties Co., Hercules Foundries, Los Angeles Steel Casting Co., Mechanical Foundries, Inc., Pacific Metals Co., Snyder Foundry Supply Co., Utility Steel Foundry and Washington-Eljer Foundry.

The No. 2 League, organized after the first league was "rolling," recruited bowlers from Aircraft Alloys, Eastern Smelting & Refining, Eld Metals, Enterprise Iron Works, Foundry Suppliers and Warman Steel Foundry.

The playoff of the two groups was held September 12, with a match game between the Aluminum Co. of America and the Warman Steel Foundry. Alcoa took the honors in the event and will be the first name engraved on the trophy awarded by the Southern California Chapter. Three consecutive championships will merit permanent possession of the award.

Robt. R. Haley, Advance Aluminum & Brass Co., Los Angeles, the Chapter Treasurer, is president of the two 1943 leagues. Each of the leagues has its own secretary: F. C. Oharek, Mechanical Foundries, Inc., Los Angeles, for the No. 1 League and H. E. Russill to guide the destinies of League No. 2.

St. Louis Discusses Foreman Training

By J. H. Williamson

AFTER the various committee chairmen of the St. Louis Chapter made individual reports to those assembled at the October 14 meeting, held at the De Soto Hotel, St. Louis, Chapter Chairman L. A. Kleber, General Steel Castings Corp., Granite City, Ill., introduced the speaker of the evening, W. G. Conner, Jr., Walworth Co., Washington Park, Ill.

Mr. Conner's subject, "The Foundry Foreman," included details of the foreman training course recently completed at his plant. His talk also included a review of the work being done by the A.F.A. Foreman Training Committee, of which he is Chairman, and the Training Within Industry branch of the War Manpower Commission.

Mr. Conner introduced another member of the Walworth organization, Philip Fruedenbert, Jr., whose past connection with the War Manpower Commission enabled him to give first-hand information on the Commission's training program in the St. Louis district.

Quiz Night at Eastern Canada & Newfoundland

By A. E. Cartwright

INDICATION of the popularity of the quiz type of program was evidenced at the Eastern Canada and Newfoundland Chapter meeting held in the Mt. Royal Hotel, Montreal, October 15, in which 119 members and guests participated.

Six discussion leaders faced the audience and answered a series of diversified questions distributed by the technical chairman of the occasion, Bernard Collitt, Jenkin Bros. Ltd., Montreal. Almost every

question and answer provoked a lively interchange of opinions and produced supplementary suggestions from many in the audience who participated in the informal exchange of ideas.

Twelve new members were introduced at the occasion, bringing the membership of the chapter to 215.

Chapter Chairman E. N. Delahunt, Warden King, Ltd., Montreal, announced promising progress of the chapter's apprentice educational program, emphasizing the necessity for foundrymen to take active steps toward interesting young men in the industry by informing them of the importance and potentialities that are to be found in the foundry field.

Ontario Group Studies Collective Bargaining at Opening Meeting

By G. L. White

APPROXIMATELY 100 foundrymen attended the September 24 meeting of the Ontario Chapter, held at the Royal Connaught Hotel, Hamilton, Ontario. While Chapter Chairman C. C. MacDonald, Frederic B. Stevens Co. of Canada, Ltd., Toronto, opened the session, he turned the introduction of the speaker and the leadership of the discussion over to the Technical Chairman, Theo. Tafel, Jr., Standard Sanitary & Dominion Radiator, Ltd., Toronto.

D. B. Chant, Ontario Pulp and Paper Makers' Safety Assn., Toronto, selected "Collective Bargaining" as the subject for this opening meeting. He indicated that whatever one's attitude toward collective bargaining, it can be taken for granted that it is a device in the industrial life of the country, use of which is daily becoming more general and which will continue to be more and more widely recognized and accepted as an instrument whereby employers and employees can try to reconcile their respective views on matters of mutual concern arising out of the work relationship.

In conclusion, Mr. Chant pointed out that one should always try to keep in mind, in connection with industrial relation problems, that there is no essential difference between the individuals making up the two groups called "labor" and "management." Neither one group nor the other has a corner on good nature, honesty, or fair-mindedness, or even stubborness. It would be well, he said, to remember that there are always three sides to a labor dispute—management's side, labor's side, and the right side. The objective should always be to find a fair, reasonable, and mutually acceptable basis of agreement to which both parties can subscribe with an open mind in good faith and good conscience.

New Chairman for Twin City Chapter

By Alexis Caswell

ALEXIS CASWELL, Manufacturers' Assn. of Minneapolis, Inc., Minneapolis, Chapter Secretary-Treasurer, presided at the October 28 meeting of the Twin City group, held at the Covered Wagon, Minneapolis.

Besides the usual technical and social aspects of the occasion, the 75 members in attendance met to elect a new chapter chairman to take the place of R. W. Bingham, American Hoist & Derrick Co., St. Paul, who was

The Chicago Chapter's Round Table Meeting, November 1, at the Chicago Bar Assn. Restaurant, Chicago, was well attended as these views of the Steel Group, the Non-Ferrous and Pattern Groups and a general assembly will indicate.

(Photos courtesy Clyde Thomas, Whiting Corp.)

forced to resign because his business activities so frequently called him away from the city. C. H. Anderson, the former Vice-Chairman, now becomes Chapter Chairman.

Five speakers contributed to the "Observations and Experiences on the Fighting Front" subject of the evening: Capt. Melvin L. Payne, Industrial Services Div., Bureau of Public Relations, St. Louis; Capt. E. K. Bodal, Public Relations Officer, Army Engineers, St. Paul; Sgt. F. P. Weber and Corp. J. A. Giammara (both wounded in action); and Eddie Gallaher, Navy Public Relations Dept., Minneapolis.

The technical phase of the program was confined to the movie, "Die Castings," which portrayed the various operations of a die casting plant.

Chicago Chapter Holds Round Table

A SERIES of round table meetings featured the November 1 meeting of the Chicago Chapter at the Chicago Bar Association. President M. F. Becker, Whiting Corp., Harvey, Ill., presided and introduced visiting members of other chapters, including H. E. Alex, Rock Island Arsenal, Rock Island, Ill., who has served 51 years in the foundry industry. He also introduced Lt. W. T. Garner, U. S. Navy, who has been serving in the Pacific area.

Three round table meetings were held during the evening. Those interested in steel founding discussed acid electric steel practice, under the chairmanship of L. H. Hahn, Sivyer Steel Castings Co., Chicago, and discussion leader W. W. Moore, Burnside Steel Castings Co., Chicago.

"Heat Treatment of Your Castings" was the subject discussed by the gray iron foundrymen. Cornell Mate, Greenlee Foundry Co., Chicago, acted as chairman and Charles Walton, Assn. of Manufacturers of Chilled Car Wheels, Chicago, acted as discussion leader.

The third meeting was a combined meeting of the non-ferrous and pattern groups, under the chairmanship of H. K. Swanson, Swanson Pattern and Model Works, East Chicago, Ind. Edward Sabey, Miehle Printing Press and Mfg. Co., and C. K. Faunt, Christensen and Olson Foundry Co., acted as leaders in discussing methods of rigging patterns for production in the non-ferrous foundry. The meeting was held to gather together the non-ferrous foundrymen and pattern makers, with the idea of cooperating more closely in their respective fields.

(Photos courtesy Geo. T. Kuhn, Gibson & Kirk Co.)

The roving photographer caught these views at the Chesapeake meeting, October 22, at the Engineers Club, Baltimore: At the speakers' table (left to right) are: Clark Adams, Bethlehem Steel Co., Sparrows Point, Md.; E. W. Horlebein, Gibson & Kirk Co., Baltimore; J. S. Vanick, International Nickel Co., New York City; R. T. Covington, Koppers Co., Baltimore; J. E. Crown, U. S. Navy Yard, National Director of A.F.A.; L. H. Denton, Baltimore Assn. of Commerce, Baltimore.

Metropolitan Reports on Two Chapter Meetings

By H. C. Seidel

METROPOLITAN Chapter's "National Officers' Night," was held November 1 at the Essex House, with Chapter Chairman John W. Reid, R. Hoe & Co., Dunellen, N. J., presiding.

Leading the guest speakers was Association President, Lee C. Wilson, Reading Steel Casting Div., American Chain & Cable Co., Inc., Reading, Pa., who outlined the various activities of the home office. Mr. Lee emphasized that the A.F.A. staff is at all times ready to advance all possible information which may be desired by any chapter.

Harry Reitinger, Bethlehem Steel Co., Bethlehem, Pa., a National Director, addressed the group as a member of the Chapter Contacts Committee, emphasizing the benefits to be derived from regional meetings.

With another National Director, R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J., presiding as technical chairman of the occasion, John N. Ludwig, Jr., Electro Metallurgical Corp., New York, talked on "Metallurgical Control in the Foundry." Slides on the subject illustrated various phases of the address.

October Meeting

The October 4th meeting at the Essex House, Newark, N. J., under the guidance of Vice-Chairman T. D. Parker, Climax Molybdenum Co., New

York, officially opened the 1943-44 season for the Metropolitan chapter. A group meeting on "Gating and Risering Practices," the four discussions leaders included the following:

Steel Castings — Karl V. Wheeler, American Steel Castings Co., Newark.

Gray Iron—H. C. Harris, Mack Mfg. Corp., New Brunswick.

Brass & Bronze — Wm. E. Paulson, Thos. Paulson & Son, Inc., Brooklyn.

Aluminum & Magnesium—R. E. Ward, Eclipse-Pioneer Div., Bendix Aviation Corp., Teterboro, N. J., assisted by A. McIntosh, Wright Aeronautical Corp., Paterson, N. J.

H. W. Dietert Speaks At Western New York

By J. Ralph Turner

AT THE regular monthly meeting of the Western New York chapter, held at Hotel Touraine, Buffalo, N. Y., Chapter Chairman Frank E. Bates, Worthington Pump & Machinery Corp., Buffalo, announced that M. T. Ganzauge, General Railway Signal Co., Rochester, N. Y., has been appointed a chapter director, to serve the unexpired term of E. P. Meade who is no longer associated with the foundry industry.

V. L. Whitehead, Jr., Whitehead Bros. Co., Buffalo, technical chairman for the occasion, then introduced the principal speaker, H. W. Dietert, Harry W. Dietert Co., Detroit.

Mr. Dietert, in speaking on "The Behavior of Molding Sand and Cores at Elevated Temperatures," showed a technicolor movie on the subject. The combined address and motion picture presented various phases of mold and core surfaces at metal-pouring temperatures. A discussion period followed the address.

Reporters on Chapter Activities

Officers and representatives of A.F.A. chapters and other foundry groups who sent in the reports of local activities, shown in the *Chapter Activities News* section, are identified below:

Central Indiana — Robert Langsenkamp, Langsenkamp-Wheeler Brass Works, Inc., Indianapolis; Chapter Secretary.

Central New York — E. G. White, Crouse-Hinds Co., Syracuse; Chapter Secretary.

Chesapeake—Geo. T. Kuhn, Gibson & Kirk Co., Baltimore, Md.; Chapter Reporter.

Eastern Canada & Newfoundland—A. E. Cartwright, Robert Mitchell Co., Ltd., St. Laurent, Que.; Chapter Director.

Metropolitan—H. C. Seidel, Penn-Rillton Co., New York; Chapter Director.

New England Foundrymen's Association — M. A. Hosmer, Hunt-Spiller Mfg. Corp., Boston.

Northeastern Ohio—W. G. Gude, *The Foundry*, Cleveland.

Northern California—Geo. L. Kennard, Northern California Foundrymen's Institute, San Francisco; Chapter Secretary-Treasurer.

Ontario—G. L. White, Westman Publications, Ltd., Toronto; Chapter Secretary-Treasurer.

Philadelphia—Wm. S. Thomas, North Bros. Mfg. Co., Philadelphia; Chapter Director.

Quad City — H. L. Creps, Frank Foundries Corp., Moline, Ill.; Chapter Secretary-Treasurer.

St. Louis — J. H. Williamson, M. A. Bell Co., St. Louis; Chapter Secretary-Treasurer.

Southern California—Robt. R. Haley, Advance Aluminum & Brass Co., Los Angeles; Chapter Treasurer.

Twin City—Alexis Caswell, Manufacturers' Assn. of Minneapolis, Inc., Minneapolis; Chapter Secretary-Treasurer.

Western Michigan—C. H. Cousineau, West Michigan Steel Foundry Co., Muskegon; Chapter Secretary.

Western New York—J. Ralph Turner, Queen City Sand & Supply Co., Buffalo, N. Y.; Chapter Secretary.

Secretary F. E. Wartgow, American Steel Foundries, Chicago, Vice-Chairman A. S. Klopf, Hansell-Elcock Co., Chicago, and Chairman M. F. Becker, Whiting Corp., Harvey, Ill., of the Chicago Chapter, talk things over during an interlude in the Round Table sessions held November 1 at the Chicago Bar Assn. Restaurant.

(Photos courtesy Clyde Thomas, Whiting Corp.)

Monthly Meeting Gives Northeastern Ohio Glimpse Into the Future

By W. G. Gude

MORE than 150 members and guests of the Northeastern Ohio Chapter attended the October monthly meeting, held at the Cleveland Club, Cleveland, October 14.

"Postwar Aluminum Castings" was an appropriate title for the address by L. W. Kempf, Aluminum Co. of America, since the talk provided a glimpse into the postwar market for aluminum castings.

Mr. Kempf pointed out that the rapid expansion in aluminum producing capacity in recent years, to an eventual annual rate of 2,100,000 lb. of ingots, will have an important effect on the entire industry. He estimated that after the war there will be a return to the market each month of between 20 and 50 million lb. of secondary aluminum, and that this volume will permit the use, among various applications, of up to 200 lb. of aluminum castings per car in automobile production.

No marked changes in the chemical specifications of aluminum castings are anticipated for the post-war market, Mr. Kempf stated. Mechanical properties can be regulated by heat treatment which will provide, he

stated, up to 35,000 lb. tensile strength with 2 per cent elongation, while 3 per cent elongation can be obtained through annealing with an accompanying tensile value of 25,000 lb.

Chesapeake Reports On October 22 Meeting

By Geo. T. Kuhn

R. T. COVINGTON, American Hammered Piston Ring Div., Koppers Co., Baltimore, Md., Chesapeake Chapter President, presided at the October 22 meeting, held at the Enneers Club, Baltimore.

Past Chapter Chairman J. E. Crown, U. S. Navy Yard, gave a short talk, emphasizing the value of round table meetings.

J. S. Vanick, International Nickel Co., New York City, presented the main subject of the evening, "Looking Ahead in Metallurgy of Cast Iron." His talk covered iron foundry production layout, cupola operation and cast iron metallurgy. Mr. Vanick placed particular emphasis on controlled grain structures, showing lantern slides to illustrate the grain structures best associated with various physical properties.

In conclusion, the speaker explained some of the new developments in cast iron, pointing out their present applications and the effect they will exert on immediate post-war metallurgy. A discussion period followed the address.

Northern California Holds Golf Outing

By Geo. L. Kennard

THE large turnout for the Northern California group's annual golf outing at the Orinda Country Club, October 8, proved to be an inspirational surprise.

Altogether it was an unusual get-together—the customary awards of loving cups, golf clubs and golf balls were replaced by war bonds and stamps. No money was appropriated to promote the party—it was self-supporting, yet netted a profit of $60 for the chapter. Moreover, the members were unanimous in pronouncing it the best outing held to date.

The key to the success of the occasion probably can be traced to the ingenuity of the members in collecting "rare old gems" for door prizes that augmented the stamps and war bonds.

Many a chuckle was afforded as the lucky winners carried off such souvenirs as a fertilizer shovel for victory gardens, an obsolete plane, an old bicycle pump for testing pressure castings, a chisel, a pair of eye glasses to assist in reading Government orders, a few old magazines to liven up a foundrymen's waiting room, with the grand prize being a piece of plumbing equipment from the year 1850. Elaborate speeches were made with the presentation of the awards.

Central New York Meets At Cornell University

By E. G. White

THE opening Central New York meeting in the 1943-44 calendar, held at Sibley College, Cornell University, Ithaca, N. Y., on October 8, began with dinner in the Martha Van Rensselaer Hall, after which the A.S.M. movie, "Metal Crystals," was shown.

Following the movie, the laboratories, the foundry and the pattern shop of Sibley College were opened for the benefit of the visitors, and demonstrations were made covering the hardness testing of cast metals, torsion tests of cast metals, Jominy tests of cast metals, metallographic examination of cast metals, and high temperature testing of foundry sands.

The meeting was arranged and conducted by J. R. Moynihan, Associate Professor of the department of engineering materials, assisted by the following staff members: Prof. J. O. Jeffrey, Prof. L. L. Otto, Prof. G. W. Ehrhart, A. P. Boehmer, J. R. Young, C. H. Patterson and H. B. Curtis.

The sand testing demonstration was conducted by D. C. Williams, holder of the A.F.A. Fellowship at Cornell.

Western Michigan Group Begins Another Season

By C. H. Cousineau

IN THIS day of rationing, steak dinners graced the menu when Western Michigan held its opening meeting, October 11, at the Ferry Hotel, Grand Haven, Mich., and 68 chapter members and guests had an opportunity to temporarily ignore the sacrifices of a "point-conscious" world.

Geo. P. Halliwell, Director of Research, H. Kramer & Co., Chicago, the guest speaker, spoke on "The Physical Metallurgy of Aluminum Bronze and Manganese Bronze and Their Application to War Work," in which he discussed the effects on the microstructure and physical properties of varying amounts of copper, zinc, nickel, manganese, aluminum, iron and lead. Lantern slides, shown to illustrate the various points, contributed to the value of the talk which was followed by a discussion period.

"The Panorama of Alloys in Steel," a movie released through the courtesy of the Climax Molybdenum Co., completed the program.

Quad City Group Discusses Foundry Coke

By H. L. Creps

SIXTY-FIVE members were present at the Ft. Armstrong Hotel, Rock Island, Ill., October 18, when the Quad City Chapter met for a discussion of "Foundry Coke, a Raw Material and a Fuel." B. P. Mulcahy, Citizen's Gas and Coke Utility, Indianapolis, was the featured speaker, and gave a description of coke manufacturing, crushing and screening, with a resume of physical and chemical properties.

It was pointed out that the current specifications for coke were compiled in 1916, and are in need of revision to bring them up to date. In the speaker's opinion, a coke ratio of 6 to 1 or 8 to 1 is most advantageous.

Mr. Mulcahy said that the cupola well is not a source of carbon dissolving to the extent

generally believed. It was his thought that the size of the coke had more effect on the carbon content of the iron.

Philadelphia Season Opens October 8

By Wm. S. Thomas

THE Philadelphia Chapter seems to have a good start toward establishing another attendance record for season activities, for 125 members and guests attended the October 8 meeting at the Engineers Club, Philadelphia.

The after-dinner speaker, G. T. Eager of the *Evening Bulletin*, who is a member of the Committee for the Economic Development of the Philadelphia County in which the City of Philadelphia is situated, gave a talk on the plans that his committee holds for the immediate post-war period.

D. Basch, consultant of materials and processes for the General Electric Co., Schenectady, N. Y., gave the technical lecture. His subject, "Future of Magnesium Castings," proved so interesting that a two and one-half hour discussion period followed.

Central Indiana Holds Two Successful Meetings

By Robert Langsenkamp

THAT Central Indiana's 1943-44 season holds every promise of success is indicated by the attendance of the first two monthly meetings.

The November 1 meeting, held at the Hotel Washington, had an attendance of 60. The group was addressed by R. A. Bonnell, Magnaflux Corp., Chicago, speaking on "The Use of Zyglo in the Inspection of Defects in Non-Magnetic and Magnetic Metal."

October Meeting

Ninety chapter members attended the opening get-together at the Hotel Washington, Indianapolis, October 4, when Dr. J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala., spoke on "Cupola Operations with Stress on Carbon Control." The address was followed by a discussion period.

New York War Clinic

ALL technical societies in the Metropolitan area are planning a combined afternoon and evening meeting in New York, January 14, for a "war clinic" similar to that held last year.

The Metropolitan Chapter of A.F.A. is one of the sponsoring groups, and has been assigned the subjects of gray iron, cast steel and centrifugal castings for its part in the program. Effort also is being made to include non-ferrous and the light metals discussions in the foundry part of the program.

Schedule of December Chapter Meetings

December
Detroit—No Meeting

✦ ✦

December 3

Chesapeake
Engineers' Club, Baltimore, Md.
ROUND TABLE MEETING

✦

Western New York
Touraine Hotel, Buffalo, N. Y.
T. E. BARLOW
Vanadium Corp. of America
"Ladle Innoculations"

✦ ✦

December 4

Northern Illinois and Southern Wisconsin
Hotel Faust, Rockford, Ill.
CHRISTMAS STAG PARTY

✦ ✦

December 6

Central Indiana
Hotel Washington, Indianapolis
NATHAN JONES
"Centrifical Casting Methods"

✦

Chicago
Chicago Bar Assn., Chicago
G. A. LILLIEQVIST
American Steel Foundries
E. L. LAGRELIUS
American Steel Foundries
E. LEVERENZ
American Steel Foundries
"Inspection of Castings Through Non-Destructive Methods"

Metropolitan
Essex House, Newark, N. J.
DR. PHILIP STEINMETZ
St. Paul's Church
"The Art of Living"

✦ ✦

December 7

Michiana
LaSalle Hotel, South Bend, Ind.
L. F. TUCKER
City Pattern Works
"Pattern Relations to Foundry"

✦ ✦

December 9

St. Louis
DeSoto Hotel, St. Louis
CHRISTMAS BANQUET

✦ ✦

December 10

Northern California

✦

Philadelphia
Engineers Club, Philadelphia
J. E. CROWN
U. S. Naval Gun Factory
"Cleaning Equipment"

✦

Southern California
Clark Hotel, Los Angeles

✦

Western Michigan
Hotel Ferry, Grand Haven, Mich.
CHRISTMAS PARTY

Wisconsin
Schroeder Hotel, Milwaukee
CHRISTMAS PARTY

✦ ✦

December 11

Central New York
Onondaga Hotel, Syracuse, N. Y.
CHRISTMAS PARTY

✦

Cincinnati
Hotel Netherland Plaza, Cincinnati
CHRISTMAS PARTY

✦ ✦

December 16

Northeastern Ohio
Carter Hotel, Cleveland
CHRISTMAS PARTY

✦ ✦

December 17

Eastern Canada and Newfoundland
Mt. Royal Hotel, Montreal
HENRI LOUETTE
Warden King, Ltd.
"Practical Sand Control"

✦

Quad City
Hotel Blackhawk, Davenport, Ia.
ANNUAL CHRISTMAS PARTY

✦ ✦

December 20

Twin City
Covered Wagon, Minneapolis
GET ACQUAINTED PARTY

✦ ✦

December 28

Toledo
Waldorf Hotel, Toledo
CHRISTMAS PARTY

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